Diploma Examinations Program

Provincial Report

June 1988 Administration

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CONTENTS

PAGE

Section 1: Purpose of the Provincial Report 1

Section 2: The Grade 12 Diploma Examinations Program 3

Section 3: Guidelines for Interpreting the Results of the Diploma Examinations 5

Section 4: Summary of Results 11

Section 5: English 30 Diploma Examination Results 15

Section 6: English 33 Diploma Examination Results 25

Section 7: Social Studies 30 Diploma Examination Results 35

Section 8: Langue et Littérature 30 Diploma Examination Results 43

Section 9: Mathematics 30 Diploma Examination Results 51

Section 10: Biology 30 Diploma Examination Results 57

Section 11: Chemistry 30 Diploma Examination Results 65

Section 12: Physics 30 Diploma Examination Results 73

Diploma Examinations Program: Provincial Report: Questionnaire . . . end page

LIST OF TABLES

TABLE		PAGE
	SECTION 4	
1	Distribution of Student Marks in Diploma Examination Courses: June 1988 Examination Administration and June 1987 Final Course Mark	11
	SECTION 5	
2	English 30: Provincial Percentage Distribution of A, B, C, and F Grades, Averages, and Standard Deviations of Scores	15
3	English 30: Multiple-Choice and Written Response Raw Score Totals	16
4	English 30: Diploma Examination Blueprint Part A: Written Response	17
5	English 30: Percentage Distribution of Scores Part A: Minor Assignment (Personal Response)	18
6	English 30: Percentage Distribution of Scores Part A: Major Assignment	19
7	English 30: Diploma Examination Blueprint Part B: Reading (Multiple Choice)	20
8	English 30: Raw Score Results Part B: Reading (Multiple Choice)	21
9	English 30: Results for Individual Multiple-Choice Questions	22
	SECTION 6	
10	English 33: Provincial Percentage Distribution of A, B, C, and F Grades, Averages, and Standard Deviations of Scores	25
11	English 33: Multiple-Choice and Written Response Raw Score Totals	26
12	English 33: Diploma Examination Blueprint Part A: Written Response	27
13	English 33: Percentage Distribution of Scores Part A: Section I (Personal Response to Literature)	28

TABLE

SECTION 6 (continued)

PAGE

14 English 33: Percentage Distribution of Scores
Part A: Section II (Functional Writing) 29

15 English 33: Percentage Distribution of Scores
Part A: Section III (Response to Visual Communication) . . 30

16 English 33: Diploma Examination Blueprint
Part B: Reading (Multiple Choice) 31

17 English 33: Raw Score Results
Part B: Reading (Multiple Choice) 32

18 English 33: Results for Individual Multiple-Choice
Questions 33

SECTION 7

19 Social Studies 30: Provincial Percentage Distribution
of A, B, C, and F Grades, Averages, and Standard
Deviations of Scores 35

20 Social Studies 30: Multiple-Choice and Written Response
Raw Score Totals 36

21 Social Studies 30: Diploma Examination Blueprint
Part A: Multiple Choice 37

22 Social Studies 30: Raw Score Results
Part A: Multiple Choice 38

23 Social Studies 30: Results for Individual
Multiple-Choice Questions 39

24 Social Studies 30: Diploma Examination Blueprint
Part B: Written Response 40

25 Social Studies 30: Percentage Distribution of Scores
Part B: Written Response 41

SECTION 8

26 Langue et Littérature 30: Provincial Percentage
Distribution of A, B, C, and F Grades, Averages,
and Standard Deviations of Scores 43

27 Langue et Littérature 30: Multiple-Choice and Written
Response Raw Score Totals 44

TABLE

SECTION 8 (continued)

PAGE

28 Langue et Littérature 30: Diploma Examination Blueprint Part A: Written Response 45

29 Langue et Littérature 30: Percentage Distribution of Scores: Part A: Minor Assignments 46

30 Langue et Littérature 30: Percentage Distribution of Scores: Part A: Major Assignment 47

31 Langue et Littérature 30: Diploma Examination Blueprint Part B: Reading (Multiple Choice) 48

32 Langue et Littérature 30: Raw Score Results Part B: Reading (Multiple Choice) 49

33 Langue et Littérature 30: Results for Individual Multiple-Choice Questions 50

SECTION 9

34 Mathematics 30: Provincial Percentage Distribution of A, B, C, and F Grades, Averages, and Standard Deviations of Scores 51

35 Mathematics 30: Multiple-Choice and Written Response Raw Score Totals 52

36 Mathematics 30: Diploma Examination Blueprint 53

37 Mathematics 30: Raw Score Averages for Subtests (Reporting Categories) 54

38 Mathematics 30: Raw Score Averages for Cognitive Levels 54

39 Mathematics 30: Results for Individual Multiple-Choice Questions 55

40 Mathematics 30: Distribution of Marks for Written Response Questions. 56

41 Mathematics 30: Average Marks Awarded for Written Response Questions. 56

TABLE

SECTION 10

PAGE

42 Biology 30: Provincial Percentage Distribution of A, B, C, and F Grades, Averages, and Standard Deviations of Scores 57

43 Biology 30: Multiple-Choice and Written Response Raw Score Totals 58

44 Biology 30: Diploma Examination Blueprint 59

45 Biology 30: Raw Score Averages for Subtests (Reporting Categories) 60

46 Biology 30: Raw Score Averages for Cognitive Levels 61

47 Biology 30: Results for Individual Multiple-Choice Questions 62

48 Biology 30: Distribution of Marks for Written Response Questions. 63

49 Biology 30: Average Marks Awarded for Written Response Questions. 63

SECTION 11

50 Chemistry 30: Provincial Percentage Distribution of A, B, C, and F Grades, Averages, and Standard Deviations of Scores 65

51 Chemistry 30: Multiple-Choice and Written Response Raw Score Totals 66

52 Chemistry 30: Diploma Examination Blueprint 67

53 Chemistry 30: Raw Score Averages for Subtests (Reporting Categories) 68

54 Chemistry 30: Raw Score Averages for Cognitive Levels 68

55 Chemistry 30: Results for Individual Multiple-Choice Questions 69

56 Chemistry 30: Distribution of Marks for Written Response Questions. 70

57 Chemistry 30: Average Marks Awarded for Written Response Questions. 70

TABLE	SECTION 12	PAGE

58 Physics 30: Provincial Percentage Distribution of A, B, C, and F Grades, Averages, and Standard Deviations of Scores 73

59 Physics 30: Multiple-Choice and Written Response Raw Score Totals 74

60 Physics 30: Diploma Examination Blueprint 75

61 Physics 30: Raw Score Averages for Subtests (Reporting Categories) 76

62 Physics 30: Raw Score Averages for Cognitive Levels 76

63 Physics 30: Results for Individual Multiple-Choice Questions 77

64 Physics 30: Distribution of Marks for Written Response Questions. 78

65 Physics 30: Average Marks Awarded for Written Response Questions. 78

SECTION 1: PURPOSE OF THE PROVINCIAL REPORT

Following each major administration of the diploma examinations, a *Provincial Report* of the results is prepared. Each superintendent and principal also receive a report of the examination results for their students, which is parallel, in format, to the *Provincial Report*.

This *Provincial Report* is intended to provide information about the results achieved by students who wrote the June 1988 Grade 12 diploma examinations. The results reported are for all students for whom both a school-awarded mark and a diploma examination mark are available. This group comprises virtually all students who completed an examination, including students in public and private schools as well as students with mature status and correspondence students who have completed their course work. Results obtained by students with mature status who have challenged the examinations are not reported.

This *Provincial Report* is intended to supplement other Student Evaluation and Records Branch documents -- the *Diploma Examinations Program Bulletins*, which are distributed in September and describe the examinations in each subject, the school and school jurisdiction reports, the examination specifications for each subject, and the examinations themselves. Information from all of these documents should enable teachers, principals, superintendents, and others to make judgments concerning student achievement at the provincial level and within schools and school jurisdictions.

Educators in each jurisdiction are encouraged to study the examination results carefully as an aid in determining the strengths and weaknesses of their programs and resources.

It is strongly recommended that educators involved in interpreting results read "Section 3: Guidelines for Interpreting the Results of Diploma Examinations," before interpreting the specific reports for their own jurisdiction, school, or instructional group.

Readers of this report are invited to respond by completing the questionnaire at the end of this booklet and sending it to the address indicated.

SECTION 2:
THE GRADE 12 DIPLOMA EXAMINATIONS PROGRAM

INTRODUCTION

The Diploma Examinations Program, which is an integral part of the high school diploma requirements, is intended to certify the level of students' academic achievement in selected Grade 12 courses.

All Grade 12 students registered in Alberta are now required to write at least ONE diploma examination in either English 30 or English 33 in order to receive a high school diploma. Provisions also exist whereby students with mature status may receive credits for a Grade 12 course by writing the appropriate diploma examination without taking instruction in the course.

The Diploma Examinations Program consists of course-specific examinations that are based on the prescribed *Program of Studies for Senior High Schools* for the following Grade 12 courses:

- English 30
- English 33
- Social Studies 30
- Langue et Littérature 30
- Mathematics 30
- Biology 30
- Chemistry 30
- Physics 30

Diploma examinations in Social Studies 30, Mathematics 30, Biology 30, Chemistry 30, and Physics 30 are available in French translation on request.

The diploma examinations are administered three times per year -- in January, June, and August.

Detailed information about the Grade 12 Diploma Examinations Program is available in the *General Information Bulletin*, in the brochure entitled "Information for Students," and in the examination information bulletins published annually for each subject.

REQUIREMENTS FOR HIGH SCHOOL DIPLOMAS

Alberta Education issues three distinct high school diplomas.

The General High School Diploma and the Advanced High School Diploma certify that the holder has met requirements outlined in the *Junior-Senior High School Handbook*. The requirements for both of these diplomas are indicated below.

The General High School Diploma

To earn a General High School Diploma, a student must obtain course credit in either English 30 or English 33 and obtain 100 credits distributed over courses as specified in the *Junior-Senior High School Handbook*.

Some students who are working towards the General Diploma may wish to obtain credits in other diploma examination courses (i.e. Social Studies 30, Mathematics 30, Biology 30, Chemistry 30, Physics 30, and Langue et Littérature 30). To obtain credits in these courses, the student must also write the appropriate diploma examination regardless of the type of diploma the student wishes to receive.

The Advanced High School Diploma

The Advanced High School Diploma certifies achievement in an academic program.

To earn an Advanced High School Diploma, a student must satisfy the current course and credit requirements for a General High School Diploma and obtain course credits in English 30, Social Studies 30, Mathematics 30, and ONE of Biology 30, Chemistry 30, or Physics 30.

When a student who has met the requirements for an Advanced High School Diploma obtains a final average of 80% or higher on the four required diploma examination courses, with not less than 65% in any one of these four required courses, this student receives an Award of Excellence. This Award of Excellence is noted on the student's Advanced High School Diploma.

When a student writes two or three of the diploma examinations in Biology 30, Chemistry 30, and Physics 30, the highest final blended mark attained is used for diploma purposes and in the calculation of the average for the Award of Excellence.

The High School Equivalency Diploma is an alternative means of certification for those individuals who have left high school. The requirements that must be met in order to earn a High School Equivalency Diploma are specified in the *Junior-Senior High School Handbook*.

AWARDING OF COURSE CREDITS

To obtain credit in any high school course, a student must earn a final mark of 50% or better. To obtain credit in a Grade 12 diploma examination course, a student must write the appropriate diploma examination and attain a final blended mark of 50% or better. The final blended mark is made up of 50% of the mark awarded by the school and 50% of the diploma examination mark.

For example, a student taking Physics 30 might have received a mark of 45% from the school but achieved a mark of 57% on the diploma examination. This student would earn credit for Physics 30 because the final blended mark would be 51%, which is the average of the school and examination marks.

For students with mature status who do not have a school mark, or who have a school mark lower than the examination mark, the examination mark is deemed the final mark.

SECTION 3: GUIDELINES FOR INTERPRETING THE RESULTS OF THE DIPLOMA EXAMINATIONS

JURISDICTION, SCHOOL, AND INSTRUCTIONAL GROUP REPORTS

In addition to this *Provincial Report*, each superintendent and principal receive a report of results achieved by the students in their particular jurisdiction or school. The superintendent of a jurisdiction may request similar reports for instructional groups within schools in the jurisdiction. Usually, instructional group reports are requested by class; however, instructional group reports may be requested for other groupings of students.

Jurisdiction, school, and instructional group reports contain tables that are parallel to the major tables in this *Provincial Report*. Tables are organized by examination subject. The following statistics are included:

- letter grade distributions for school-awarded, diploma examination, and final blended marks
- averages for school-awarded, diploma examination, and final blended marks
- averages for multiple-choice questions, written response questions, and the reporting categories used in this *Provincial Report*
- the percentage of students selecting each alternative on each multiple-choice question
- individual student results for examination marks: total test, multiple choice, written response, and major reporting categories

All reported statistics are based on results attained by those students for whom both an examination mark and a school-awarded mark are available. Results obtained by students with mature status who have challenged the examinations are not included in any reported sample. Original school-awarded marks and examination marks are used; any changes due to appeals will not appear. In the event that differences exist between marks given in the reports and marks on results statements and transcripts, the marks on results statements and transcripts are to be considered the official marks.

USE OF THE REPORTS

The reports may be used as part of the information for

- evaluating educational programs in each subject
- improving the quality of educational programs
- identifying strengths and weaknesses of the individual student, school, and jurisdiction by comparing their results with provincial results

The reports are NOT intended to be used as the basis for

- evaluating teacher performance
- comparing performance between or among schools

Administrators in each jurisdiction should apply separate locally developed teacher, school, and school system evaluation policies to the tasks of evaluating teacher and school performance.

The information provided in the reports is factual regarding *what* has happened. The interpretation of this information -- hypothesizing *why* results are as they are -- involves many complex considerations of the factors and variables that contribute to achievement.

FACTORS LIMITING THE INTERPRETATION OF EXAMINATION RESULTS

Educators who are interpreting results must take into account the following limitations:

1. School-awarded marks and diploma examination marks are complementary measures. The role of the examination is to provide a common measure of achievement for students throughout the province. School-awarded marks should reflect ALL important aspects of learning in a course, including those that cannot be measured by a time-limited paper and pencil test. Therefore, differences between an individual student's school-awarded mark and that student's diploma examination mark in a subject are to be expected. Any comparisons of the two types of marks should be restricted to group statistics for groups of reasonable size and should be made with full knowledge of the differences between the two measures.

2. Jurisdiction, school, or group size will affect the importance of differences between the provincial results and results reported in jurisdiction, school, or instructional group reports.

3. Blended mark distributions *cannot* be directly compared to school-awarded mark distributions or diploma examination mark distributions.

4. Factors affecting student selection of examination courses vary from school to school. These factors must be considered when comparing school or jurisdiction marks to provincial marks:

   - Some schools may have a limited selection of courses. Students with weak academic records who, in other schools, would have selected nonexamination courses will find it necessary to take diploma examination courses for credits. These schools should adjust their expectations downward relative to the provincial mean.
   - Some schools may have a policy of encouraging students to challenge any diploma examination course, resulting in a higher than usual proportion of students taking those courses. These schools should also adjust their expectations downward relative to the provincial mean.
   - Some schools may have a policy of discouraging students with weak academic records from enrolling in particular diploma examination courses, resulting in a lower than usual proportion of students taking those courses. These schools should adjust their expectations upward relative to the provincial mean.

FACTORS THAT MAY AFFECT STUDENT ACHIEVEMENT

There are many factors, or variables, that may contribute to student achievement. Some of these factors are:

1. Environment
   - community environment
   - school environment
   - socio-economic background
   - family circumstances

2. Student Factors
   - ability
   - attitude
   - motivation
   - aspiration
   - academic background
   - learning methods

3. Resources (availability and appropriateness)
   - programs of study
   - curriculum guides
   - resource materials
   - library services
   - current textbooks
   - references

4. Instruction
   - qualifications of teachers
   - teacher experience
   - professional development
   - teacher morale
   - teaching strategies
   - hours of instruction
   - staff turnover
   - amount of homework assigned
   - communication of teacher expectations

A SYSTEMATIC APPROACH FOR EFFECTIVE USE OF EXAMINATION RESULTS

Examination results can be used constructively as one means of improving the quality of education. Some steps for a systematic use of examination results are listed below:

1. Compare test results for a school or instructional group to the provincial results. Be sure that your comparisons include the following:
   - total test score
   - total multiple-choice and written response scores
   - subscale scores for multiple choice and written response (this administration as well as results over time)
   - individual multiple-choice and written response question results

2. Note any patterns, anomalies, and/or interrelationships in the results.

3. Hypothesize relationships between your observations and factors (see above) that may have had an affect on achievement.

4. Consider and plan an action that will help improve the quality of education for students.

AN ADMINISTRATIVE MODEL FOR THE EFFECTIVE USE OF EXAMINATION RESULTS

The following is *one* model that may be useful for adaptation by those wishing to develop a constructive system for interpreting diploma examination results. This model is based on work done by Medicine Hat School District #76.

Basic Principles

1. It is desirable and feasible for teachers and school administrators to make use of diploma examination results in analysing the performance of their own students.

2. It is more constructive for schools to develop their own analyses, interpretations, and action plans than to have these imposed externally.

3. Factors such as those listed on page 7 should be analysed and discussed when reviewing examination results.

4. Subtest or reporting category results are usually more informative than total test scores.

5. Generalizations should be based on results from several diploma examination administrations.

6. It is neither desirable nor productive to compare the results of different schools.

7. Diploma examinations measure many of the objectives specified by the curriculum. *However, skills and concepts that are not measured by the diploma examinations are also to be taught and evaluated.*

8. Staff discussions as well as written reports are useful means of ensuring that results are appropriately interpreted and used.

Suggested Content for Interpretations of Individual School Results

1. Subject and date of examination administration

2. Number of students who wrote the examination

3. Profile of students or groups who wrote the examination
   - patterns of course selection
   - previous performance
   - prerequisites
   - number of students repeating the course, etc.

4. Program emphases: e.g. hours of instruction, skill and content emphases

5. Instructional practices: e.g. methodology, resources, and the relationship between the program offered and the provincial curriculum

6. Program objectives not measured by the diploma examination

7. School results compared to provincial results on subtests

8. Current school results compared to those of previous administrations

9. Discussion of actual and expected subtest results, with recommended action

10. Discussion of question results, identification of common student errors, and suggestions of ways for reducing the misunderstanding that leads to these errors

11. Recommendations for the following year or semester

12. Summary and concluding comments

Suggested Reporting Structure

1. Teachers, department heads, and/or principals analyse and prepare a written report about each administration of a diploma examination.

2. Principals review and sign the report.

3. The report is shared with central office supervisory personnel.

4. The appropriate central office supervisory personnel prepare a written response to the report, with copies of the response going to the teacher, department head, and principal.

5. If possible, all involved staff meet to discuss the report and the response.

6. Reports are used to improve the program and maximize future opportunities for student success.

7. When large differences exist between expected and actual examination results, consideration should be given to performing a formal program evaluation.

8. The report for the January and June administrations could include comparisons with achievement data from Grade 10 and Grade 11 courses.

SECTION 4
SUMMARY OF RESULTS

In Table 1, the provincial distribution of student marks in the diploma examination courses is summarized. The percentage distribution for the school-awarded mark, the June 1988 diploma examination mark, and the final blended mark achieved by students is shown for each of the A, B, C, and F grade categories. In addition, a comparison with the June 1987 diploma examination course results is provided.

Table 1
Distribution of Student Marks in Diploma Examination Courses
June 1988 Examination Administration and June 1987 Final Course Mark*

Diploma Examination Course	June 1988 School-Awarded Mark	June 1988 Diploma Examination Mark	June 1988 Final Blended Mark	June 1987 Final Blended Mark
English 30			N = 13 943	N = 13 286
A (80-100%)	14.0	8.7	9.1	10.8
B (65-79%)	40.1	31.9	37.6	38.4
C (50-64%)	38.0	44.6	47.3	45.0
F (0-49%)	7.8	14.9	6.0	5.8
Mean	65.4	62.0	64.1	64.8
Standard Deviation**	12.2	12.3	11.0	11.2
English 33			N = 5 229	N = 5 572
A (80-100%)	4.1	6.4	3.4	3.3
B (65-79%)	30.5	41.3	35.6	34.3
C (50-64%)	52.1	39.0	54.2	55.7
F (0-49%)	13.3	13.3	6.8	6.7
Mean	60.0	63.0	61.9	61.7
Standard Deviation	10.8	11.7	9.6	9.6

*The figures may be changed slightly as a result of appeals of school-awarded marks, rereads of diploma examinations, or special cases considerations.
**Standard deviation is an indication of the amount of variation in a distribution. Normally, about 34% of the population will be distributed one "standard deviation" above the mean and about 34% of the population will be distributed one "standard deviation" below the mean. To take the English 30 Diploma Examination as an example, 68% of the students who wrote the examination scored between 49.7% and 74.3%.

(Continued)

Table 1 (continued)

Diploma Examination Course	June 1988 School-Awarded Mark	June 1988 Diploma Examination Mark	June 1988 Final Blended Mark	June 1987 Final Blended Mark
Social Studies 30			N = 11 892	N = 11 696
A (80-100%)	18.3	16.1	15.9	14.6
B (65-79%)	37.3	34.3	36.9	35.9
C (50-64%)	37.0	30.8	37.5	40.6
F (0-49%)	7.5	18.8	9.6	8.8
Mean	66.4	63.8	65.4	64.9
Standard Deviation	12.5	15.1	13.1	12.7
Langue et Littérature 30			N = 184	N = 191
A (80-100%)	35.3	10.3	17.9	29.3
B (65-79%)	44.0	51.1	55.4	52.4
C (50-64%)	16.8	33.2	24.5	17.8
F (0-49%)	3.8	5.4	2.2	0.5
Mean	73.1	67.3	70.5	73.8
Standard Deviation	11.3	10.2	9.8	9.3
Mathematics 30			N = 10 028	N = 9 681
A (80-100%)	19.7	24.7	21.4	20.5
B (65-79%)	30.9	25.5	28.3	28.5
C (50-64%)	37.5	24.6	35.4	37.6
F (0-49%)	11.9	25.2	14.8	13.4
Mean	65.4	63.8	65.0	65.0
Standard Deviation	14.6	19.1	16.0	15.5
Biology 30			N = 10 419	N = 10 284
A (80-100%)	20.5	23.6	21.8	23.1
B (65-79%)	35.8	26.0	30.2	30.3
C (50-64%)	35.6	26.6	35.4	33.3
F (0-49%)	8.1	23.7	12.7	13.2
Mean	66.9	63.8	65.7	66.1
Standard Deviation	13.1	18.1	15.0	15.3

(Continued)

Table 1 (continued)

Diploma Examination Course	June 1988 School-Awarded Mark	June 1988 Diploma Examination Mark	June 1988 Final Blended Mark	June 1987 Final Blended Mark
Chemistry 30			N = 8 809	N = 8 932
A (80-100%)	22.7	21.9	21.1	24.8
B (65-79%)	35.3	24.2	30.5	34.7
C (50-64%)	33.2	28.4	35.4	30.2
F (0-49%)	8.7	25.5	13.0	10.3
Mean	67.5	62.9	65.5	67.9
Standard Deviation	13.8	18.2	15.2	14.9
Physics 30			N = 5 011	N = 5 183
A (80-100%)	28.3	29.7	27.7	22.8
B (65-79%)	37.3	28.9	35.4	33.3
C (50-64%)	28.3	25.0	28.6	33.5
F (0-49%)	6.1	16.4	8.3	10.4
Mean	70.0	67.7	69.3	67.1
Standard Deviation	13.5	17.5	14.7	14.7

SECTION 5:
ENGLISH 30 DIPLOMA EXAMINATION RESULTS

ENGLISH 30: AVERAGES AND DISTRIBUTION OF MARKS

The English 30 Diploma Examination consists of two parts: Part A: Written Response and Part B: Reading (Multiple Choice), each worth 50% of the total examination mark.

Information in all tables contained in this section is based on the results achieved by 13 943 students.

Table 2 presents percentage distributions by letter grade for school-awarded marks, diploma examination marks, and final blended marks in English 30. Averages and standard deviations for these three measures are also presented.

Table 2
English 30
Provincial Percentage Distribution of A, B, C, and F Grades, Averages, and Standard Deviations of Scores

Score (%)	School-Awarded Mark	Diploma Examination Mark	Final Blended Mark
A (80-100)	14.0	8.7	9.1
B (65-79)	40.1	31.9	37.6
C (50-64)	38.0	44.6	47.3
F (0-49)	7.8	14.9	6.0
Average (%)	65.4	62.0	64.1
Standard Deviation*	12.2	12.3	11.0

*See footnote defining "standard deviation" (page 11).

Table 3 presents averages and standard deviations for the written response and multiple-choice sections of the English 30 Diploma Examination. Averages given in Table 3 are based on raw scores, which are the number of marks obtained within each section of the examination.

The total marks possible are identified for the written response and multiple-choice sections.

Table 3
English 30
Multiple-Choice and Written Response Raw Score Totals

Examination Section	Total Marks	Weighting (%)	Average	Standard Deviation
Part A: Written Response*	50	50	31.9	6.7
Part B: Multiple Choice	79	50	47.5	11.6

*Readers of this report should note that the design and internal weighting of reporting categories for Part A: Written Response changed in January 1988. Educators interpreting local results should take the design changes into consideration. (See Table 4 for reporting category weighting. See the *Grade 12 Diploma Examinations Bulletin: English 30 & English 33: 1987-88 School Year* for a complete explanation of the design changes.)

ENGLISH 30: RESULTS OF PART A: WRITTEN RESPONSE

Table 4 presents the blueprint used in the development of Part A: Written Response. Part A has a total value of 50 marks and contributes 50% to the total examination mark in English 30.

Table 4 outlines the nature of the assignments, the reporting categories (scoring scales used), and the proportion of the total mark assigned to each category.

Table 4
English 30
Diploma Examination Blueprint
Part A: Written Response

Description of the Writing Assignment	Reporting Category	Proportion of Total Mark (%)
Minor Assignment		
The student is required to offer a personal response to the reading selection provided on the examination.	1. Thought & Detail	7.5
	2. Writing Skills	7.5
Major Assignment		
The Major Assignment maintains a thematic connection to the Minor Assignment. The student is required to demonstrate an appreciation of literary works studied through a discussion of theme and literary techniques that support that theme. The student is also required to synthesize thoughts clearly and correctly in writing.	1. Total Impression	5
	2. Thought & Detail	12.5
	3. Organization	7.5
	4. Matters of Choice	5
	5. Matters of Convention	5
		50.0

Table 5 presents the percentage distribution of scores (scale points) for the minor assignment of Part A: Written Response.

Results for Part A: Written Response are most clearly understood in the context of the assignments responded to by students and in the context of the scoring descriptors. Complete scoring guides are available in the *Grade 12 Diploma Examinations Bulletin: English 30 & English 33: 1987-88 School Year.*

All schools should also have extra copies of Part A: Written Response for use in conjunction with information provided in Tables 5 and 6.

The results outlined in Tables 5 and 6 are perhaps best considered in terms of the percentage of students judged by markers to have presented work that was "Satisfactory" or above on any reporting category.

Please note that students do better on some dimensions of the task than on others. It is possible to draw conclusions about local program strengths and weaknesses by comparing local percentages of "Satisfactory" or above scores on each reporting category to the provincial averages.

Table 5
English 30
Percentage Distribution of Scores
Part A: Minor Assignment (Personal Response)

Score (Scale Points)	Reporting Category	
	Thought & Detail	Writing Skills
5 (Exceptional)	4.5	4.3
4 (Proficient)	33.2	34.8
3 (Satisfactory)	50.8	51.7
2 (Limited)	10.3	8.2
1 (Poor)	0.9	0.7
INS (Insufficient or No Response)	0.3	0.3

In responding to the minor assignment, 88.5% of the students scored "Satisfactory" or above for Thought & Detail and 90.8% scored "Satisfactory" or above for Writing Skills.

Table 6 presents the percentage distribution of scores (scale points) for the major assignment of Part A: Written Response.

Table 6
English 30
Percentage Distribution of Scores
Part A: Major Assignment

Score (Scale Points)	Reporting Category				
	Total Impression	Thought & Detail	Organization	Matters of Choice	Matters of Convention
5 (Exceptional)	3.6	3.9	3.7	4.2	7.3
4 (Proficient)	21.1	21.3	23.9	26.9	37.6
3 (Satisfactory)	52.0	44.6	56.4	56.0	44.5
2 (Limited)	21.1	27.2	14.4	11.1	8.7
1 (Poor)	1.6	2.3	1.0	1.1	1.3
INS (Insufficient or No Response)	0.6	0.6	0.6	0.6	0.6

In responding to the major assignment, 76.7% of the students scored "Satisfactory" or above for Total Impression. Similar results for the other reporting categories of the major assignment are 69.8% for Thought & Detail, 84.0% for Organization, 87.1% for Matters of Choice, and 89.4% for Matters of Convention.

ENGLISH 30: RESULTS OF PART B: READING (MULTIPLE CHOICE)

Table 7 presents the blueprint used to develop Part B: Reading (Multiple Choice). Part B normally has a value of 80 marks (one mark for each multiple-choice question) and contributes 50% to the total examination mark in English 30. Examination emphases (mark values) for each reporting category and cognitive level are included in the table. It is important to note that one multiple-choice question was dropped from Part B: Reading (Multiple Choice) after a review of question statistics and that, for June 1988, the total mark value of Part B is 79 marks.

Classification by reporting category and cognitive level for each question included in Part B: Reading (Multiple Choice) is indicated in Table 7.

Table 7
English 30
Diploma Examination Blueprint
Part B: Reading (Multiple Choice)

Reporting Category	Questions by Cognitive Level			Examination Emphasis (%)
	Literal Understanding	Inference and Application	Evaluation	
Meanings	*20,27,28,46*	*3,4,5,26,29, 33,37,38,42, 45,48,49,54, 56,57,70,71, 72,75,76*	*2,6,12,35, 50,51,52, 55,69,74, 78,80*	23
Critical Response	*40*	*7,8,9,10,11*, 13,14,16,18, 21,23,30,32, 34,39,41,43, 44,58,60,63, 65*	*1,47,64*	16
Human Experience and Values	*15,22*	*17,24,25,31, 59,62,67,79*	*19,36,53, 61,66,68, 73,77*	11
Examination Emphasis (%)	4.5	31	14.5	50

*Question 11 was deleted from the examination.

Table 8 presents the provincial results for each of the multiple-choice reporting categories. The results are given in raw score form. Reporting categories contain different numbers of questions, and the questions are not specifically selected to make the different categories equal in difficulty. Therefore, it is not correct to make direct comparisons of results achieved in the different categories.

Table 8
English 30
Raw Score Results
Part B: Reading (Multiple Choice)

Reporting Category	Average	Standard Deviation
1. Meanings (36 questions)	20.2	5.8
2. Critical Response (25 questions)	15.7	4.0
3. Human Experience and Values (18 questions)	11.5	3.2

Table 9 on page 22 presents the percentage of students choosing each alternative (A, B, C, and D) for each multiple-choice question on Part B: Reading (Multiple Choice). The correct response (key) for each question is also identified. The results presented in Table 9 can best be used in conjunction with results presented in jurisdiction, school, and instructional group reports to interpret strengths and weaknesses of local educational programs.

Exam developers select questions for Part B: Reading (Multiple Choice) that fit the requirements of the blueprint with respect to question style and curriculum emphasis. They select questions that cover the full range of difficulty but strive to maintain a balance between difficult, easy, and middle-difficulty questions.

Each question is carefully reviewed for statistical and curricular validity once the preliminary results are available. Questions that have unforeseen statistical problems are deleted before students' scores are calculated. For example, question 11 was deleted because the statistical results indicated a flaw in the question. Consequently, Table 9 gives no information about question 11.

Table 9
English 30
Results for Individual Multiple-Choice Questions*

Item	Key	Distribution of Responses (%) A	B	C	D	Item	Key	Distribution of Responses (%) A	B	C	D
1	C	11.4	9.8	77.1	1.7	41	D	7.9	19.0	9.2	63.9
2	C	6.7	4.1	51.8	37.3	42	A	38.4	13.6	13.4	34.5
3	B	7.5	68.3	8.2	15.9	43	B	10.6	66.6	7.0	15.8
4	A	65.0	9.7	15.1	10.1	44	C	7.9	18.3	43.4	30.2
5	A	89.7	1.8	3.6	4.9	45	A	74.6	15.0	3.9	6.4
6	C	9.9	8.6	80.9	0.6	46	D	4.9	6.5	8.7	79.8
7	B	3.3	86.7	6.6	3.4	47	D	14.5	8.2	6.6	70.7
8	B	4.2	76.7	16.4	2.6	48	C	1.4	8.2	56.6	33.8
9	A	60.6	7.8	10.4	21.1	49**	A	30.1	18.0	17.2	34.6
10	B	2.4	76.3	5.1	16.3	50**	D	31.8	43.4	2.3	22.4
11	QUESTION DELETED					51	D	7.1	28.3	7.1	57.5
12	A	53.8	8.3	15.4	22.4	52**	A	30.1	6.4	53.0	10.5
13	C	6.8	12.3	69.6	11.3	53	D	4.2	9.0	3.6	83.1
14	A	57.7	6.6	13.8	21.9	54	D	11.4	25.2	29.7	33.7
15	C	12.2	2.0	81.8	4.0	55	D	17.8	24.9	10.0	47.1
16	C	12.5	7.1	67.0	13.3	56	B	7.9	79.8	10.6	1.7
17	D	5.5	5.9	4.6	84.0	57	A	31.1	26.2	36.5	6.0
18	C	10.5	2.5	73.7	13.3	58	C	18.8	10.8	38.3	32.0
19	C	27.7	8.1	53.6	10.6	59	B	17.9	68.4	4.8	8.8
20	D	16.0	18.9	10.1	54.9	60	A	55.6	12.5	5.0	26.7
21	C	23.4	8.1	60.1	8.5	61	B	12.1	40.0	25.2	22.7
22	A	52.8	26.1	13.2	7.9	62	B	3.5	87.9	3.1	5.5
23	A	45.7	24.3	21.3	8.5	63	D	31.6	5.0	5.8	57.6
24	D	2.1	21.6	6.6	69.7	64	A	62.2	13.5	12.3	12.0
25	C	20.7	26.6	40.1	12.5	65	C	2.3	21.6	65.2	10.8
26	A	76.9	6.5	12.9	3.5	66	A	81.9	6.2	7.0	4.8
27	C	8.2	30.3	55.9	5.6	67	B	15.3	54.4	15.5	14.7
28	B	40.7	52.1	5.8	1.3	68	C	7.1	6.5	71.3	14.9
29	B	19.2	41.0	13.3	26.4	69	D	6.5	4.9	14.4	74.0
30	B	11.4	61.1	14.4	13.1	70	D	13.7	30.4	14.4	41.3
31	B	16.3	30.0	41.1	12.6	71	B	14.3	56.4	12.2	16.8
32	A	65.8	19.3	3.6	11.3	72	C	18.3	23.5	55.6	2.2
33	D	7.3	7.1	22.7	62.9	73	C	16.1	11.3	66.3	5.9
34	B	18.5	53.3	8.0	20.1	74	A	59.0	13.8	16.1	10.5
35	B	25.3	59.5	4.0	11.3	75	A	49.2	32.6	7.2	10.6
36	C	4.0	17.7	64.6	13.6	76	D	17.7	4.9	29.0	47.9
37	A	62.5	16.0	8.1	13.3	77	D	19.2	13.7	13.9	52.8
38	B	12.4	58.4	12.2	16.9	78	B	4.9	72.3	15.5	6.9
39	D	24.3	17.6	16.1	41.9	79	C	14.7	5.4	68.0	11.3
40	C	11.3	12.3	73.4	3.0	80	D	22.6	18.6	7.2	50.9

*The sum of the percentages for each question may be less than 100% because the No Response category is not included. This category is not greater than 0.7% for any question.
**A discussion of these questions follows on page 23.

Although questions 49, 50, and 52 were very difficult, they all proved to be statistically strong questions discriminating very well between higher and lower achieving students. Teachers, in their review of the exam, indicated that these three questions and their keyed answers are appropriate.

In question 49 students may not have taken the time to check their selected answers by rereading all or part of the sonnet.

Questions 50 and 52 were apparently difficult for those students who could not identify the "sestet" of the sonnet. These questions are legitimate in terms of the expectations of the curriculum (see concept 11, page 25 of the *Senior High School Language Arts Curriculum Guide, 1982*). The *Program of Studies for Elementary Schools (1982)* emphasizes that by the end of Grade three students should "use structural analysis to identify words (...prefixes, suffixes, endings...)." It would seem clear that successful English 30 students possess enough understanding about root words in order for them to decode the meaning of the terms "octet" and "sestet" even if they have not studied specifics about the form of the sonnet since junior high school.

SECTION 6
ENGLISH 33 DIPLOMA EXAMINATION RESULTS

ENGLISH 33: AVERAGES AND DISTRIBUTION OF MARKS

The English 33 Diploma Examination consists of two parts: Part A: Written Response and Part B: Reading (Multiple Choice), each worth 50% of the total examination mark.

Information in all tables contained in this section is based on the results achieved by 5 229 students.

Table 10 presents percentage distributions by letter grade for school-awarded marks, diploma examination marks, and final blended marks in English 33. Averages and standard deviations for these three measures are also presented.

Table 10
English 33
Provincial Percentage Distribution of A, B, C, and F Grades, Averages, and Standard Deviations of Scores

Score (%)	School-Awarded Mark	Diploma Examination Mark	Final Blended Mark
A (80-100)	4.1	6.4	3.4
B (65-79)	30.5	41.3	35.6
C (50-64)	52.1	39.0	54.2
F (0-49)	13.3	13.3	6.8
Average (%)	60.0	63.0	61.9
Standard Deviation*	10.8	11.7	9.6

*See footnote defining "standard deviation" (page 11).

Table 11 presents averages and standard deviations for the written response and multiple-choice sections of the English 33 Diploma Examination. Averages given in Table 11 are based on raw scores, which are the number of marks obtained on each section of the examination.

The total marks possible are identified for the written response and multiple-choice sections.

Table 11
English 33
Multiple-Choice and Written Response Raw Score Totals

Examination Section	Total Marks	Weighting (%)	Average	Standard Deviation
Part A: Written Response*	50	50	31.5	5.5
Part B: Multiple Choice	69	50	43.3	10.9

*Readers of this report should note that the design and internal weighting of reporting categories for Part A: Written Response changed in January 1988. Educators interpreting local results should take the design changes into consideration. (See Table 4 for reporting category weighting. See the *Grade 12 Diploma Examinations Bulletin: English 30 & English 33: 1987-88 School Year* for a complete explanation of the design changes.)

ENGLISH 33: RESULTS OF PART A: WRITTEN RESPONSE

Table 12 presents the blueprint used in the development of Part A: Written Response. Part A has a total value of 50 marks and contributes 50% to the total examination mark in English 33.

Table 12 outlines the nature of the assignments, the reporting categories (scoring scales used), and the proportion of the total mark assigned to each category.

Table 12
English 33
Diploma Examination Blueprint
Part A: Written Response

Description of the Writing Assignment	Reporting Category	Proportion of Total Mark (%)
Personal Response to Literature The student is required to discuss an aspect of literature from a personal perspective.	1. Thought & Detail	10
	2. Organization	5
	3. Matters of Choice	5
	4. Matters of Convention	5
Functional Writing The assignment is functional in nature. The student is required to write within a given situation or context.	1. Thought & Detail	10
	2. Organization	2.5
	3. Writing Skills	2.5
Response to Visual Communication The writing assignment is connected to one or more photographs and/or cartoons. The student is required to write about main ideas and techniques of visual communication.	1. Thought & Detail	5
	2. Organization	2.5
	3. Writing Skills	2.5
		50.0

Table 13 presents the percentage distribution of scores (scale points) for Section I of Part A: Written Response.

Results for Part A: Written Response are most clearly understood in the context of the assignments responded to by students and in the context of the scoring descriptors. Complete scoring guides are available in the *Grade 12 Diploma Examinations Bulletin: English 30 & English 33: 1987-88 School Year.*

All schools should also have extra copies of Part A: Written Response for use in conjunction with information provided in Tables 13, 14, and 15.

The results outlined in Tables 13, 14, and 15 are perhaps best considered in terms of the percentage of students judged by markers to have presented work that was "Adequate" or above on any reporting category.

Please note that students do better on some dimensions of the task than on others. It is possible to draw conclusions about local program strengths and weaknesses by comparing local percentages of "Adequate" or above scores on each reporting category to the provincial averages.

Table 13
English 33
Percentage Distribution of Scores
Part A: Section I (Personal Response to Literature)

Score (Scale Points)	Reporting Category			
	Thought & Detail	Organization	Matters of Choice	Matters of Convention
5 (Proficient)	1.6	2.2	2.5	6.1
4 (Capable)	23.7	25.6	27.8	38.6
3 (Adequate)	56.0	63.1	60.2	43.4
2 (Limited)	17.4	8.3	8.6	10.7
1 (Poor)	1.1	0.6	0.7	1.1
INS (Insufficient or No Response)	0.2	0.2	0.2	0.2

In responding to the assignment in Section I, 81.3% of the students scored "Adequate" or above for Thought & Detail. Similar results for the other reporting categories of Section I are 90.9% for Organization, 90.5% for Matters of Choice, and 88.1% for Matters of Convention.

Table 14 presents the percentage distribution of scores (scale points) for Section II of Part A: Written Response.

Table 14
English 33
Percentage Distribution of Scores
Part A: Section II (Functional Writing)

Score (Scale Points)	Reporting Category		
	Thought & Detail	Organization	Writing Skills
5 (Proficient)	2.7	3.5	4.2
4 (Capable)	24.2	30.6	32.9
3 (Adequate)	48.9	57.1	51.1
2 (Limited)	22.4	8.3	10.9
1 (Poor)	1.6	0.3	0.7
INS (Insufficient or No Response)	0.2	0.2	0.2

In responding to the assignment in Section II, 75.8% of the students scored "Adequate" or above for Thought & Detail. Similar results for the other reporting categories of Section II are 91.2% for Organization and 88.2% for Writing Skills.

Table 15 presents the percentage distribution of scores (scale points) for Section III of Part A: Written Response.

Table 15
English 33
Percentage Distribution of Scores
Part A: Section III (Response to Visual Communication)

Score (Scale Points)	Reporting Category		
	Thought & Detail	Organization	Writing Skills
5 (Proficient)	1.3	1.3	2.5
4 (Capable)	16.9	19.4	27.4
3 (Adequate)	57.4	65.2	54.7
2 (Limited)	21.3	12.2	12.8
1 (Poor)	1.7	0.5	1.1
INS (Insufficient or No Response)	1.5	1.5	1.5

In responding to the assignment in Section III, 75.6% of the students scored "Adequate" or above for Thought & Detail. Similar results for the other reporting categories of Section III are 85.9% for Organization and 84.6% for Writing Skills.

ENGLISH 33: RESULTS OF PART B: READING (MULTIPLE CHOICE)

Table 16 presents the blueprint used to develop Part B: Reading (Multiple Choice). Part B normally has a value of 70 marks (one mark for each multiple-choice question) and contributes 50% to the total examination mark in English 33. Examination emphases (mark values) for each reporting category and cognitive level are included in the table. It is important to note that one multiple-choice question was dropped from Part B: Reading (Multiple Choice) after a review of question statistics and that, for June 1988, the total mark value of Part B is 69 marks.

Classification by reporting category and cognitive level for each question included in Part B: Reading (Multiple Choice) is indicated in Table 16.

Table 16
English 33
Diploma Examination Blueprint
Part B: Reading (Multiple Choice)

Reporting Category	Questions by Cognitive Level			Examination Emphasis (%)
	Literal Understanding	Inference and Application	Evaluation	
Meanings	*26,30,34,59*	*2,6,7,14,15, 24,33,51,52, 53,56,57*,58, 65*	*1,9,17, 20,23,25, 28,54,55*	19
Relationships of Form and Content	*27,66*	*4,10,18,19, 60,61,67,68, 69,70*	*8*	9.5
Human Experience and Values		*3,5,11,12,13, 21,22,29,31, 32,35,36,37, 62,63*	*16,64*	12
Life Skills	*41,46*	*38,39,42,43, 45,47,48,50*	*40,44,49*	9.5
Examination Emphasis (%)	5.5	33.5	11	50

*Question 57 was deleted from the examination.

Table 17 presents the provincial results for each of the multiple-choice reporting categories. The results are given in raw score form. Reporting categories contain different numbers of questions, and the questions are not specifically selected to make the different categories equal in difficulty. Therefore, it is not correct to make direct comparisons of results achieved in the different categories.

Table 17
English 33
Raw Score Results
Part B: Reading (Multiple Choice)

Reporting Category	Average	Standard Deviation
1. Meanings (26 questions)	16.5	4.5
2. Relationships: Form and Content (13 questions)	8.1	2.7
3. Human Experience and Values (17 questions)	11.2	3.2
4. Life Skills (13 questions)	7.6	2.5

Table 18 on page 33 presents the percentage of students choosing each alternative (A, B, C, and D) for each multiple-choice question on Part B: Reading (Multiple Choice). The correct response (key) for each question is also identified. The results presented in Table 18 can best be used in conjunction with results presented in jurisdiction, school, and instructional group reports to interpret strengths and weaknesses of local educational programs.

Exam developers select questions for Part B: Reading (Multiple Choice) that fit the requirements of the blueprint with respect to question style and curriculum emphasis. They select questions that cover the full range of difficulty but strive to maintain a balance between difficult, easy, and middle-difficulty questions.

Each question is carefully reviewed for statistical and curricular validity once the preliminary results are available. Questions that have unforeseen statistical problems are deleted before students' scores are calculated. For example, question 57 was deleted because the statistical results indicated a flaw in the question. Consequently, Table 18 gives no information about question 57.

Table 18
English 33
Results for Individual Multiple-Choice Questions*

Item	Key	Distribution of Responses (%) A	B	C	D	Item	Key	Distribution of Responses (%) A	B	C	D
1	B	5.0	52.7	22.5	19.8	36	A	72.5	5.7	5.0	16.8
2	A	59.7	9.5	22.5	8.1	37	C	12.6	8.9	75.0	3.4
3	D	3.3	13.2	8.2	75.3	38	B	4.7	81.3	3.7	10.2
4	C	7.4	25.1	55.5	12.0	39	C	9.9	19.4	64.3	6.3
5	C	23.9	8.3	62.3	5.4	40	B	15.4	36.7	17.5	30.3
6	D	12.4	12.4	11.1	64.2	41	B	12.2	62.5	13.3	12.0
7	A	51.7	19.0	23.9	5.3	42	D	30.1	7.6	27.2	35.0
8	C	7.5	12.6	73.1	6.7	43	D	8.7	9.2	14.2	67.9
9	D	3.1	14.6	14.9	67.3	44	A	66.4	16.9	13.7	2.8
10	B	30.6	51.0	9.7	8.7	45	D	11.5	18.9	9.6	60.0
11	B	25.4	62.1	8.7	3.7	46	C	18.6	15.4	47.2	18.7
12	C	2.8	14.9	75.9	6.4	47	A	52.5	18.4	19.0	10.0
13	B	53.6	38.9	1.9	5.6	48	B	16.9	49.5	20.1	13.2
14	C	4.8	7.7	75.0	12.5	49	B	13.2	75.1	8.9	2.6
15	A	64.1	22.5	10.7	2.7	50	C	18.3	16.4	58.6	6.5
16	A	64.9	9.7	8.1	17.3	51	A	46.5	13.2	39.3	0.8
17	A	80.8	2.7	4.9	11.6	52	B	6.3	65.6	25.1	2.8
18	B	2.8	79.6	7.7	9.8	53	C	7.5	13.4	71.1	7.8
19	A	56.4	3.8	11.0	28.6	54	C	23.9	10.9	56.2	8.9
20	D	8.4	10.1	16.8	64.7	55	C	6.6	4.9	75.4	12.9
21	B	0.8	70.2	7.6	21.5	56	D	21.9	10.8	5.6	61.5
22	A	64.5	3.6	27.0	4.9	57	QUESTION DELETED				
23	B	8.3	74.2	12.1	5.4	58	A	54.3	22.1	12.3	11.1
24	C	5.9	10.7	72.6	10.8	59	B	12.1	60.7	13.1	13.8
25	C	3.5	26.7	65.7	4.1	60	D	9.4	13.9	10.5	65.9
26	C	35.8	13.4	31.7	19.0	61	B	18.8	66.0	5.7	9.2
27	D	5.8	9.1	11.2	73.8	62	D	10.0	9.8	10.8	69.0
28	B	15.3	69.6	2.8	12.3	63	B	33.0	41.7	19.9	5.1
29	B	5.2	63.4	10.1	21.3	64	D	9.3	18.0	7.9	64.5
30	D	14.7	11.4	10.7	63.2	65	B	5.7	61.4	15.9	16.4
31	A	80.4	4.8	7.2	7.6	66	D	12.1	5.8	18.1	63.4
32	C	14.6	9.4	71.2	4.7	67	C	10.8	13.9	69.2	5.5
33	A	70.7	5.4	18.0	5.9	68	B	13.1	62.9	12.5	10.8
34	B	5.7	67.4	22.4	4.4	69	D	13.4	28.4	17.3	40.1
35	B	6.2	71.3	2.2	20.2	70	D	13.7	9.9	23.9	51.6

*The sum of the percentages for each question may be less than 100% because the No Response category is not included. This category is not greater than 0.9% for any question.

SECTION 7:
SOCIAL STUDIES 30 DIPLOMA EXAMINATION RESULTS

SOCIAL STUDIES 30: AVERAGES AND DISTRIBUTION OF MARKS

The Social Studies 30 Diploma Examination consists of multiple-choice questions (worth 70% of the total examination mark) and a written response question (worth 30% of the total examination mark).

Information in all tables contained in this section is based on the results achieved by 11 892 students.

Table 19 presents percentage distributions by letter grade for school-awarded marks, diploma examination marks, and final blended marks in Social Studies 30. Averages and standard deviations for these three measures are also presented.

Table 19
Social Studies 30
Provincial Percentage Distribution of A, B, C, and F Grades,
Averages, and Standard Deviations of Scores

Score (%)	School-Awarded Mark	Diploma Examination Mark	Final Blended Mark
A (80-100)	18.3	16.1	15.9
B (65-79)	37.3	34.3	36.9
C (50-64)	37.0	30.8	37.5
F (0-49)	7.5	18.8	9.6
Average (%)	66.4	63.8	65.4
Standard Deviation*	12.5	15.1	13.1

*See footnote defining "standard deviation" (page 11).

Table 20 presents averages and standard deviations for the multiple-choice and written response sections of the Social Studies 30 Diploma Examination. Averages given in Table 20 are based on raw scores, which are the number of marks obtained on each section of the examination.

The total marks possible are identified for the multiple-choice and written response sections.

Differences between the total Social Studies 30 Diploma Examination average reported in Table 19 and examination section averages reported in Table 20 are due to rounding.

Table 20
Social Studies 30
Multiple-Choice and Written Response Raw Score Totals

Examination Section	Total Marks	Weighting (%)	Average	Standard Deviation
Written Response	30	30	16.6	5.0
Multiple Choice	70	70	47.1	11.7

SOCIAL STUDIES 30: RESULTS OF PART A: MULTIPLE CHOICE

Table 21 presents the blueprint used in the development of Part A: Multiple Choice. Part A has a total value of 70 marks and contributes 70% to the total examination mark in Social Studies 30. Examination emphases (mark values) for each reporting category (content and process categories) are included in the table.

Classification by reporting category (content and process categories) for each question included in Part A: Multiple Choice is indicated in Table 21.

Table 21
Social Studies 30
Diploma Examination Blueprint
Part A: Multiple Choice

Content Category	Questions by Process Category*					Examination Emphasis (%)
	Recall & Comp.	Inquiry Skills A	Inquiry Skills B	Inquiry Skills C	Valuing Skills	
Value Concepts						
competing values, value positions - Topic A - Topic B	*29,35, 41,42*				*17,34, 37,69*	8
Political & Economic Systems facts, concepts, generalizations	*1,2,3,4, 5,10,14, 15,22,23, 24,25,26, 27,28,33*	*9,16, 30*	*6,7,8, 12,13,18, 19,21,32*	*11,20, 31*		31
Co-operation & Conflict Among States facts, concepts, generalizations	*43,44,45, 49,50,51, 53,57,58, 62,63,65, 66,67,68, 70*	*38,52, 54*	*36,39,46, 47,48,55, 59,60,61*	*40,56, 64*		31
Examination Emphasis (%)	36	6	18	6	4	70

*Inquiry Skills A -- Identify and focus on the issue and formulate research questions. Inquiry Skills B -- Gather, organize, analyse, evaluate, and synthesize data. Inquiry Skills C -- Resolve the issue, apply the decision, and evaluate the decision, process, and action.

Table 22 presents the provincial results for each of the multiple-choice reporting categories. The results are given in raw score form. Reporting categories contain different numbers of questions, and the questions are not specifically selected to make the different categories equal in difficulty. Therefore, it is not correct to make direct comparisons of results achieved in the different categories.

Table 22
Social Studies 30
Raw Score Results
Part A: Multiple Choice

Reporting Category	Average	Standard Deviation
1. Recall & Comprehension (32 questions)	20.6	5.7
2. Inquiry Skills: Identify Issue (6 questions)	4.4	1.4
3. Inquiry Skills: Gather & Use Data (18 questions)	12.1	3.3
4. Inquiry Skills: Resolve & Decide (6 questions)	4.2	1.5
5. Valuing (8 questions)*	5.9	1.7
6. Political & Economic Systems (35 questions)	23.2	6.1
7. Co-operation & Conflict (35 questions)	23.9	6.2

*Recall and Comprehension questions in the Value Concepts category in Table 21 are included in Reporting Category 5 (Valuing).

Table 23 on page 39 presents the percentage of students choosing each alternative (A, B, C, and D) for each multiple-choice question on Part A: Multiple Choice. The correct response (key) for each question is also identified. The results presented in Table 23 can best be used in conjunction with results presented in jurisdiction, school, and instructional group reports to interpret strengths and weaknesses of local educational programs.

Exam developers select questions for Part B: Reading (Multiple Choice) that fit the requirements of the blueprint with respect to question style and curriculum emphasis. They select questions that cover the full range of difficulty but strive to maintain a balance between difficult, easy, and middle-difficulty questions.

Table 23
Social Studies 30
Results for Individual Multiple-Choice Questions*

Item	Key	Distribution of Responses (%) A	B	C	D	Item	Key	Distribution of Responses (%) A	B	C	D
1	B	4.5	83.3	5.5	6.6	36	D	7.2	5.3	1.1	86.4
2	A	73.8	8.3	4.3	13.4	37	C	3.6	1.1	93.9	1.4
3	D	17.9	9.0	8.6	64.4	38	D	12.5	10.0	6.4	71.1
4	D	14.5	10.9	3.7	70.8	39	A	75.0	13.0	9.3	2.6
5	C	3.4	23.3	60.3	13.0	40	D	7.7	28.0	5.8	58.5
6	B	13.4	68.2	7.4	10.9	41	A	63.0	8.4	20.5	8.0
7	D	9.9	7.4	10.8	71.8	42	B	18.4	60.5	7.3	13.8
8	C	7.4	9.1	79.6	3.8	43	C	5.5	16.7	67.1	10.7
9	A	76.9	5.0	13.2	4.8	44	B	13.7	60.0	22.7	3.5
10	D	19.5	8.5	11.3	60.7	45	A	63.8	6.9	19.9	9.3
11	C	4.6	7.8	77.7	9.8	46	B	17.3	65.5	6.9	10.2
12	B	7.2	69.6	10.8	12.3	47	D	16.0	11.2	17.2	55.6
13	A	51.8	15.9	15.6	16.7	48	D	13.6	15.0	20.5	50.9
14	D	3.6	12.4	13.9	70.0	49	B	7.9	50.7	30.5	10.9
15	A	66.9	13.4	12.0	7.6	50	C	19.3	6.2	65.1	9.5
16	D	22.6	1.2	9.3	66.8	51	B	4.6	80.5	6.5	8.4
17	B	5.1	83.8	6.8	4.2	52	C	7.4	7.8	71.4	13.4
18	A	86.9	4.4	3.9	4.8	53	A	59.8	10.4	20.8	9.1
19	C	16.0	3.9	58.6	21.4	54	A	81.3	7.2	6.2	5.3
20	D	11.0	4.5	15.8	68.6	55	B	5.7	72.5	6.2	15.5
21	C	6.6	4.7	86.3	2.4	56	C	12.6	13.8	62.4	11.1
22	D	24.7	19.1	4.9	51.2	57	C	24.7	14.0	46.7	14.6
23	A	60.7	12.9	8.8	17.5	58	B	14.5	75.7	4.9	4.8
24	C	5.1	8.6	71.9	14.3	59	A	83.3	5.7	7.6	3.4
25	A	50.3	10.4	23.5	15.7	60	D	4.5	18.4	18.9	58.0
26	B	17.0	58.8	12.4	11.6	61	B	8.6	65.9	9.6	15.8
27	A	67.0	13.7	17.2	2.1	62	D	11.7	8.0	13.8	66.5
28	C	14.1	11.0	54.9	19.9	63	D	23.4	6.1	13.4	57.1
29	B	18.5	57.1	9.3	15.0	64	C	7.3	2.0	87.6	3.1
30	B	4.4	72.4	8.5	14.6	65	B	9.6	82.8	4.5	3.0
31	C	8.5	10.1	67.0	14.3	66	D	29.8	2.1	11.8	56.2
32**	A	19.9	66.5	11.4	2.2	67	C	20.2	5.7	64.2	9.8
33	D	17.8	13.4	20.7	48.0	68	D	2.8	4.7	4.2	88.2
34	A	77.4	9.4	5.3	7.9	69	D	2.2	3.0	11.0	83.8
35	A	64.7	16.7	5.3	13.3	70	A	59.7	12.5	3.1	24.6

*The sum of the percentages for each question may be less than 100% because the No Response category is not included. This category is not greater than 0.1% for any question.

**This question proved to be very difficult. The question capitalized the word THEORY, and also referred to "model Marxist communism." This should have alerted students to consider their answer carefully in terms of a theoretical model. Rather, the majority chose an answer representing a stereotypic and biased interpretation of Marxism. The distribution of responses suggests that students did not read the question carefully.

SOCIAL STUDIES 30: RESULTS OF PART B: WRITTEN RESPONSE

Table 24 presents the blueprint used to develop Part B: Written Response. Part B has a total value of 30 marks and contributes 30% to the total examination mark in Social Studies 30. Table 24 outlines the nature of the assignment, the reporting categories (scoring scales used), and the proportion of the total mark assigned to each category.

Table 24
Social Studies 30
Diploma Examination Blueprint
Part B: Written Response

Description of the Writing Assignment	Reporting Category	Proportion of Total Mark (%)
The student is required to write one complete and unified essay in which the student integrates steps of the inquiry process by defending a position on a given issue.	1. Description of Value Positions	5
	2. Defence of Position	10
	3. Description of Examples or Case Studies	10
	4. Quality of Language and Expression	5
		30

Table 25 presents the percentage distribution of scores (scale points) for the writing assignment of Part B: Written Response.

Results for Part B: Written Response are most clearly understood in the context of the assignments responded to by students, and in the context of the scoring descriptors. Complete scoring guides are available in the *Grade 12 Diploma Examinations Bulletin: Social Studies 30: 1987-88 School Year.*

All schools should also have extra copies of the Social Studies 30 Diploma Examination (June 1988) for use in conjunction with information provided in Table 25.

The results outlined in Table 25 are perhaps best considered in terms of the percentage of students judged by markers to have presented work that was "Satisfactory" or above on any reporting category.

Please note that students do better on some dimensions of the task than on others. It is possible to draw conclusions about local program strengths and weaknesses by comparing local percentages of "Satisfactory" or above scores on each reporting category to the provincial averages.

Table 25
Social Studies 30
Percentage Distribution of Scores
Part B: Written Response

Score (Scale Points)	Reporting Category			
	Description of Value Positions	Defence of Position	Description of Examples	Quality of Expression
5 (Exceptional)	2.5	2.2	2.8	3.4
4 (Proficient)	17.9	15.8	16.5	22.9
3 (Satisfactory)	39.9	39.9	37.7	55.3
2 (Limited)	27.0	35.5	32.3	17.0
1 (Poor)	12.1	6.3	9.8	1.1
0 (Insufficient or No Response)	0.5	0.3	0.9	0.2

In responding to the writing assignment, 60.3% of the students scored "Satisfactory" or above for Description of Value Positions. Similar results for the other reporting categories of the writing assignment are 57.9% for Defence of Position, 57.0% for Description of Examples or Case Studies, and 81.6% for Quality of Language and Expression.

SECTION 8:
LANGUE ET LITTÉRATURE 30 DIPLOMA EXAMINATION RESULTS

LANGUE ET LITTÉRATURE 30: AVERAGES AND DISTRIBUTION OF MARKS

The Langue et Littérature 30 Diploma Examination consists of two parts: Part A: Written Response and Part B: Reading (Multiple Choice), each worth 50% of the total examination mark.

Information in all tables contained in this section is based on the results achieved by 184 students.

Table 26 presents percentage distributions by letter grade for school-awarded marks, diploma examination marks, and final blended marks in Langue et Littérature 30. Averages and standard deviations for these three measures are also presented.

Table 26
Langue et Littérature 30
Provincial Percentage Distribution of A, B, C, and F Grades, Averages, and Standard Deviations of Scores

Score (%)	School-Awarded Mark	Diploma Examination Mark	Final Blended Mark
A (80-100)	35.3	10.3	17.9
B (65-79)	44.0	51.1	55.4
C (50-64)	16.8	33.2	24.5
F (0-49)	3.8	5.4	2.2
Average (%)	73.1	67.3	70.5
Standard Deviation*	11.3	10.2	9.8

*See footnote defining "standard deviation" (page 11).

Table 27 presents averages and standard deviations for the written response and multiple-choice sections of the Langue et Littérature 30 Diploma Examination. Averages given in Table 27 are based on raw scores, which are the number of marks obtained on each section of the examination.

The total marks possible are identified for the written response and multiple-choice sections.

Table 27
Langue et Littérature 30
Multiple-Choice and Written Response Raw Score Totals

Examination Section	Total Marks	Weighting (%)	Average	Standard Deviation
Part A: Written Response	50	50	35.4	5.5
Part B: Multiple Choice	74	50	47.2	8.7

LANGUE ET LITTÉRATURE 30: RESULTS OF PART A: WRITTEN RESPONSE

Table 28 presents the blueprint used in the development of Part A: Written Response. Part A has a total value of 50 marks and contributes 50% to the total examination mark in Langue et Littérature 30. Table 28 outlines the nature of the assignments, the reporting categories (scoring scales used), and the proportion of the total mark assigned to each category.

Table 28
Langue et Littérature 30
Diploma Examination Blueprint
Part A: Written Response

Description of the Writing Assignment	Reporting Category	Proportion of Total Mark (%)
Minor Assignment		
For both minor assignments, students are given a personal situation or context in which they are asked to develop an argument or to present information.	1. Content	15
	2. Writing Skills	5
Major Assignment		
The major assignment sets a specific writing task. However, the student chooses relevant details (examples, illustrations) from literature studied in Langue et Littérature. The writing assignment is related to a brief reading selection given in the exam. The student is required to understand literal and implied meanings and to synthesize thoughts clearly and correctly in writing.	1. Total Impression	5
	2. Content	10
	3. Organization	5
	4. Style	5
	5. Matters of Convention	5
		50

Table 29 presents the percentage distribution of scores (scale points) for the minor assignments of Part A: Written Response.

Results for Part A: Written Response are most clearly understood in the context of the assignments responded to by students, and in the context of the scoring descriptors. Complete scoring guides are available in the *Grade 12 Diploma Examinations Bulletin: Langue et Littérature: 1987-88 School Year.*

All schools should also have extra copies of Part A: Written Response for use in conjunction with information provided in Tables 29 and 30.

The results outlined in Tables 29 and 30 are perhaps best considered in terms of the percentage of students judged by markers to have presented work that was "Satisfactory" or above on any reporting category.

Please note that students do better on some dimensions of the task than on others. It is possible to draw conclusions about local program strengths and weaknesses by comparing local percentages of "Satisfactory" or above scores on each reporting category to the provincial averages.

Table 29
Langue et Littérature 30
Percentage Distribution of Scores
Part A: Minor Assignments

Score (Scale Points)	Minor Assignment 1 Reporting Category		Minor Assignment 2 Reporting Category	
	Content	Writing Skills	Content	Writing Skills
5 (Exceptional)	15.2	9.2	6.0	6.5
4 (Proficient)	46.7	33.2	50.0	33.7
3 (Satisfactory)	34.8	53.8	40.2	53.8
2 (Limited)	3.3	3.8	2.7	4.9
1 (Poor)	-	-	-	-
INS (Insufficient or No Response)	-	-	1.1	1.1

In responding to Minor Assignment 1, 96.7% of the students scored "Satisfactory" or above for Content, and 96.2% scored "Satisfactory" or above for Writing Skills. In responding to Minor Assignment 2, 96.2% of the students scored "Satisfactory" or above for Content, and 94.0% scored "Satisfactory" or above for Writing Skills.

Table 30 presents the percentage distribution of scores (scale points) for the major assignment of Part A: Written Response.

Table 30
Langue et Littérature 30
Percentage Distribution of Scores
Part A: Major Assignment

Score (Scale Points)	Reporting Category				
	Total Impression	Content	Organization	Style	Matters of Convention
5 (Exceptional)	8.2	5.4	7.6	8.2	4.3
4 (Proficient)	34.8	42.4	51.1	35.9	30.4
3 (Satisfactory)	54.9	46.2	38.6	48.4	55.4
2 (Limited)	2.2	6.0	2.7	7.6	9.8
1 (Poor)	-	-	-	-	-
INS (Insufficient or No Response)	-	-	-	-	-

In responding to the major assignment, 97.9% of the students scored "Satisfactory" or above for Total Impression. Similar results for the other reporting categories of the major assignment are 94.0% for Content, 97.3% for Organization, 92.5% for Style, and 90.1% for Matters of Convention.

LANGUE ET LITTÉRATURE 30: RESULTS OF PART B: READING (MULTIPLE CHOICE)

Table 31 presents the blueprint used to develop Part B: Reading (Multiple Choice). Part B normally has a value of 80 marks (one mark for each multiple-choice question) and contributes 50% to the total examination mark in Langue et Littérature 30. Examination emphases (mark values) for each reporting category and cognitive level are included in the table. It is important to note that six multiple-choice questions were dropped from Part B: Reading (Multiple Choice) after a review of question statistics and that, for June 1988, the total mark value of Part B is 74 marks.

Classification by reporting category and cognitive level for each question included in Part B: Reading (Multiple Choice) is indicated in Table 31.

Table 31
Langue et Littérature 30
Diploma Examination Blueprint
Part B: Reading (Multiple Choice)

Reporting Category	Questions by Cognitive Level			Examination Emphasis (%)
	Literal Understanding	Inference and Application	Evaluation	
Understanding (Content)	*1,4,44,48, 62,75*	*7,9,20,22,23, 27,28,30,35, 36,40,41,42, 43,50,54,63, 68,74,78,79*	*2,19,34, 46,56,66, 67**	21
Critical Response (Form)	*21,45,49, 72,77*	*13,15,17,31, 38,51,53,55, 57*,58,59,65, 76*	*3*,11,24, 32,47*,60, 61*	16
Interpretation (Human values and experiences)		*5,8,10,12, 14,26,29,39, 52,69,73,80*	*6,16,18, 25,33,37, 64*,70,71**	13
Examination Emphasis (%)	7	29	14	50

*Questions 3, 47, 57, 64, 67, and 71 were deleted from the examination.

Table 32 presents the provincial results for each of the multiple-choice reporting categories. The results are given in raw score form. Reporting categories contain different numbers of questions, and the questions are not specifically selected to make the different categories equal in difficulty. Therefore, it is not correct to make direct comparisons of results achieved in the different categories.

Table 32
Langue et Littérature 30
Raw Score Results
Part B: Reading (Multiple Choice)

Reporting Category	Average	Standard Deviation
1. Understanding (33 questions)	21.2	4.5
2. Critical Response (22 questions)	13.7	2.9
3. Interpretation (19 questions)	12.3	2.7

Table 33 on page 50 presents the percentage of students choosing each alternative (A, B, C, and D) for each multiple-choice question on Part B: Reading (Multiple Choice). The correct response (key) for each question is also identified. The results presented in Table 33 can best be used in conjunction with results presented in jurisdiction, school, and instructional group reports to interpret strengths and weaknesses of local educational programs.

Exam developers select questions for Part B: Reading (Multiple Choice) that fit the requirements of the blueprint with respect to question style and curriculum emphasis. They select questions that cover the full range of difficulty but strive to maintain a balance between difficult, easy, and middle-difficulty questions.

Each question is carefully reviewed for statistical and curricular validity once the preliminary results are available. Questions that have unforeseen statistical problems are deleted before students' scores are calculated. For example, questions 3, 47, 57, 64, 67, and 71 were deleted because the statistical results indicated flaws in the questions. Consequently, Table 33 gives no information about questions 3, 47, 57, 64, 67, and 71.

Table 33
Langue et Littérature 30
Results for Individual Multiple-Choice Questions*

Item	Key	Distribution of Responses (%) A	B	C	D	Item	Key	Distribution of Responses (%) A	B	C	D
1	C	8.6	11.4	74.1	5.9	41	D	5.4	3.2	8.1	83.2
2	D	8.6	33.5	5.4	52.4	42	A	88.1	1.1	10.3	0.5
3	QUESTION DELETED					43	C	1.6	2.2	84.9	11.4
4	B	51.9	35.7	4.3	8.1	44	B	6.5	73.0	14.6	5.9
5	D	2.7	5.4	3.8	88.1	45	A	71.4	15.7	5.9	7.0
6	C	28.1	14.6	53.5	3.8	46	A	51.4	37.3	5.4	5.9
7	D	2.7	1.1	15.7	80.5	47	QUESTION DELETED				
8	A	90.3	0.5	7.6	1.6	48	D	33.5	13.0	11.9	41.6
9	B	16.2	67.6	10.3	5.9	49	A	37.3	20.0	23.8	18.9
10	C	11.9	1.1	86.5	0.5	50	D	7.0	23.8	12.4	56.8
11	B	9.2	44.3	7.6	38.9	51	B	13.0	69.7	9.2	8.1
12	A	35.7	30.8	14.6	18.9	52	A	83.2	1.6	5.9	8.6
13	D	5.4	2.2	22.2	70.3	53	A	51.9	10.3	5.9	31.9
14	B	1.6	74.6	3.2	20.5	54	D	6.5	18.4	4.9	70.3
15	B	2.2	96.2	0.0	1.6	55	A	31.4	16.2	17.8	34.6
16	C	12.4	21.1	52.4	14.1	56	C	17.3	24.3	57.8	0.5
17	A	48.6	9.2	22.7	19.5	57	QUESTION DELETED				
18	D	4.3	11.4	3.8	80.5	58	A	32.4	9.7	25.9	31.9
19	A	75.1	14.6	5.4	4.9	59	C	7.6	10.8	66.5	15.1
20	D	31.9	20.0	13.5	34.6	60	A	87.0	4.3	5.4	3.2
21	C	2.2	0.5	92.4	4.9	61	B	10.8	71.9	11.4	5.9
22	B	2.7	81.1	9.7	6.5	62	D	1.6	16.8	0.5	81.1
23	D	10.8	4.3	23.2	61.1	63	A	23.2	11.4	13.0	52.4
24	C	20.0	15.7	41.6	22.7	64	QUESTION DELETED				
25	D	12.4	10.8	10.8	65.9	65	C	25.4	27.6	44.3	2.7
26	B	4.3	76.2	8.1	11.4	66	A	63.8	14.6	15.7	5.9
27	C	7.6	6.5	44.9	40.5	67	QUESTION DELETED				
28	B	25.9	54.1	1.1	18.9	68	C	8.1	6.5	69.2	16.2
29	D	9.7	22.2	14.1	53.5	69	D	17.3	8.1	20.0	54.6
30	B	3.8	70.3	21.6	4.3	70	B	22.7	44.3	28.1	4.9
31	A	94.1	1.1	0.5	4.3	71	QUESTION DELETED				
32	D	6.5	2.2	4.3	87.0	72	A	46.5	3.8	41.1	8.6
33	C	11.9	10.3	74.1	3.8	73	D	6.5	25.4	17.3	50.8
34	B	9.7	65.4	16.8	8.1	74	B	30.8	57.3	4.9	7.0
35	D	4.9	10.3	18.9	65.9	75	B	8.6	63.8	14.1	13.5
36	D	12.4	18.9	4.9	63.8	76	A	43.8	5.4	22.7	28.1
37	A	52.4	13.0	28.1	6.5	77	A	51.4	17.3	7.6	23.8
38	B	6.5	87.0	3.2	3.2	78	C	3.8	9.2	77.3	9.7
39	A	57.3	4.3	8.6	29.7	79	B	2.7	62.2	17.3	17.8
40	D	0.0	3.2	9.2	87.6	80	D	6.5	24.9	19.5	49.2

*The sum of the percentages for each question may be less than 100% because the No Response category is not included. This category is not greater than 0.5% for any question.

SECTION 9
MATHEMATICS 30 DIPLOMA EXAMINATION RESULTS

MATHEMATICS 30: AVERAGES AND DISTRIBUTION OF MARKS

The Mathematics 30 Diploma Examination consists of Part A, containing multiple-choice questions worth 80% of the total examination mark, and Part B, containing written response questions worth 20% of the total examination mark.

Information in all tables contained in this section is based on results achieved by 10 028 students.

Table 34 presents percentage distributions by letter grade of school-awarded marks, diploma examination marks, and final blended marks in Mathematics 30. Averages and standard deviations for these three measures are also presented.

Table 34
Mathematics 30
Provincial Percentage Distribution of A, B, C, and F Grades,
Averages, and Standard Deviations of Scores

Score (%)	School-Awarded Mark	Diploma Examination Mark	Final Blended Mark
A (80-100)	19.7	24.7	21.4
B (65-79)	30.9	25.5	28.3
C (50-64)	37.5	24.6	35.4
F (0-49)	11.9	25.2	14.8
Average (%)	65.4	63.8	65.0
Standard Deviation	14.6	19.1	16.0

The parameters presented in Table 34 should be compared with statistics in similar tables in the jurisdiction, school, and instructional group reports as an aid in interpreting strengths and weaknesses of local educational programs. The distribution of results from the Mathematics 30 Diploma Examination and the standard deviation indicate that the examination is measuring across the full range of marks. It should be noted that approximately 68% of the students earned marks between 45% and 83%, that is, one standard deviation above and below the average of 63.8%.

Table 35 presents averages and standard deviations for the written response and multiple-choice sections of the Mathematics 30 Diploma Examination. Averages given in Table 35 are based on raw scores, which are the number of marks obtained on each section of the examination.

The total marks possible are identified for the written response and multiple-choice sections.

Differences between the total Mathematics 30 Diploma Examination average reported in Table 34 and examination section averages reported in Table 35 are due to rounding.

Table 35
Mathematics 30
Multiple-Choice and Written Response Raw Score Totals

Examination Section	Total Marks	Weighting (%)	Average	Standard Deviation
Written Response	13	20	7.1	3.7
Multiple Choice	52	80	34.3	9.5

MATHEMATICS 30: DIPLOMA EXAMINATION RESULTS

Table 36 presents the blueprint used to develop the Mathematics 30 Diploma Examination. Question numbers in brackets [ ] indicate questions included in Part B of the Mathematics 30 examination. Question numbers that are *not* enclosed in brackets indicate the multiple-choice questions included in Part A.

Examination emphases (mark values) for each reporting category and cognitive level are included in the table. Classification by reporting category and cognitive level for each question is indicated.

Table 36
Mathematics 30
Diploma Examination Blueprint

Reporting Category	Questions By Cognitive Level				Examination Emphasis (%)
	Knowledge	Comprehension	Application	Higher Mental Activities	
Trigonometry	*3,5*	*4,6,8,9*	*1,2,10,11* [3]	*7*	24.6
Quadratic Relations	*14,25*	*12,15,20, 21,22,23*	*13,16,18, 19*	*17,24*	21.5
Sequences, Series, Limits	*26*	*27,31,33*	*28,29,32* [1]	*30*	18.5
Statistics	*34,37*	*36,38,39, 43*	*35,40,41*	*42*	15.4
Logarithms		*44*	*45* [2]		9.2
Polynomial Functions		*46,50,51, 52*	*47*	*48,49*	10.8
Examination Emphasis (%)	10.8	33.8	44.6	10.8	100.0

NOTE: Numbers in brackets [ ] indicate the written response questions.

Tables 37 and 38 present the total marks possible and the provincial averages in raw scores for the subtests (reporting categories) and cognitive levels of Part A and Part B, as well as the total Mathematics 30 Diploma Examination.

The results presented in Tables 37 and 38 can best be used in conjunction with results presented in jurisdiction, school, and instructional group reports to interpret strengths and weaknesses of local educational programs.

Table 37
Mathematics 30
Raw Score Averages for Subtests (Reporting Categories)

Subtest	Total Marks Possible			Raw Score Averages		
	Written Response	Multiple Choice	Total	Written Response	Multiple Choice	Total
Trigonometry	5	11	16	2.2	7.2	9.3*
Quadratic Relations	0	14	14	N/A	8.9	8.9
Sequences, Series, Limits	4	8	12	2.3	5.7	8.0
Statistics	0	10	10	N/A	6.6	6.6
Logarithms	4	2	6	2.6	1.4	4.0
Polynomial Functions	0	7	7	N/A	4.6	4.6

*Small discrepancies between parts and totals are due to rounding.

Table 38
Mathematics 30
Raw Score Averages for Cognitive Levels

Cognitive Level	Total Marks Possible			Raw Score Averages		
	Written Response	Multiple Choice	Total	Written Response	Multiple Choice	Total
Knowledge	0	7	7	N/A	4.9	4.9
Comprehension	0	22	22	N/A	14.8	14.8
Application	13	16	29	7.1	10.9	18.0
Higher Mental Activities	0	7	7	N/A	3.7	3.7

Table 39 presents the percentage of students choosing each alternative (A, B, C, and D) for each multiple-choice question on the Mathematics 30 Diploma Examination. The correct response (key) for each question is also identified. The results presented in Table 39 can best be used in conjunction with results presented in jurisdiction, school, and instructional group reports to interpret strengths and weaknesses of local educational programs.

Multiple-choice questions ranged from those that students found to be quite difficult, such as question 7 with only 42.3% of the students answering correctly, to those that were quite easy for students, such as question 26 with 89.4% of the students answering correctly. An example of a question of average difficulty is question 36 with 65.4% of the students answering correctly.

Table 39
Mathematics 30
Results for Individual Multiple-Choice Questions*

Item	Key	Distribution of Responses (%) A	B	C	D	Item	Key	Distribution of Responses (%) A	B	C	D
1	D	4.8	3.7	5.9	85.4	27	C	2.8	13.7	61.3	22.3
2	A	72.3	9.8	4.7	12.9	28	A	83.7	5.3	6.7	4.2
3	D	5.7	7.1	20.6	66.5	29	B	10.9	51.1	25.4	12.4
4	D	4.5	9.4	28.6	57.2	30	A	64.5	16.9	14.4	3.6
5	A	71.1	18.1	5.5	5.2	31	A	73.5	9.1	10.7	6.6
6	B	13.0	67.9	8.9	10.2	32	B	15.7	66.6	11.3	6.3
7	C	19.5	17.9	42.3	20.0	33	C	5.4	8.0	77.4	8.8
8	C	5.4	12.7	78.2	3.7	34	A	71.8	14.6	2.9	10.6
9	A	54.2	12.2	11.4	22.1	35	D	8.1	22.1	6.7	63.0
10	A	62.6	12.1	13.7	11.5	36	D	3.0	4.3	27.2	65.4
11	D	13.1	9.6	18.7	58.3	37	B	3.1	74.2	1.9	20.7
12	B	5.8	81.7	8.7	3.8	38	A	63.7	14.0	17.2	5.0
13	A	76.2	9.3	11.1	3.3	39	C	6.3	27.7	58.2	7.6
14	D	18.0	19.0	8.0	54.9	40	A	60.6	24.4	5.7	9.2
15	D	15.5	16.6	8.1	59.7	41	D	14.8	5.3	7.0	72.8
16	C	10.8	8.8	74.3	6.1	42	B	11.6	55.6	14.6	18.0
17	C	17.2	13.5	45.8	23.0	43	D	2.9	4.5	17.8	74.5
18	B	13.0	65.5	7.8	13.6	44	B	6.6	73.3	15.1	5.0
19	B	23.2	65.9	2.6	8.3	45	C	15.5	5.4	66.4	12.3
20	B	16.3	59.6	9.6	14.4	46	C	2.2	14.1	82.0	1.6
21	A	69.4	15.9	9.8	4.9	47	D	7.9	15.7	17.1	59.1
22	D	17.6	9.9	16.1	56.4	48	A	65.9	17.0	9.8	7.1
23	A	69.1	11.1	15.0	4.8	49	B	16.2	52.9	21.0	9.4
24	D	10.2	29.8	14.0	45.6	50	C	16.9	13.5	62.4	7.0
25	C	17.2	12.9	58.8	11.0	51	A	72.7	12.4	5.1	9.8
26	B	6.2	89.4	3.0	1.4	52	C	15.6	11.8	62.5	9.9

*The sum of the percentages for some questions is less than 100% because the No Response category is not included. This category does not exceed 0.5% for any question.

Table 40 presents the distribution of marks for each question on Part B of the Mathematics 30 Diploma Examination.

Table 40
Mathematics 30
Distribution of Marks for Written Response Questions

Question	Percentage of Students Obtaining Each Mark						
	NR*	0	1	2	3	4	5
1	4.9	12.8	8.9	9.9	50.1	13.2	
2	6.1	8.0	14.3	18.9	7.3	45.4	
3	6.4	26.3	11.5	11.5	12.7	15.4	16.1

*No Response

To take question number 1 as an example, 4.9% of the students did not respond to the question, 12.8% were awarded no marks for their responses, 8.9% received one mark out of four, and 13.2% received full marks for their responses.

Table 41 presents the provincial raw score average and difficulty level for each question on Part B of the Mathematics 30 Diploma Examination. These averages *cannot* be directly compared since the questions were designed to be different in difficulty.

Table 41
Mathematics 30
Average Marks Awarded for Written Response Questions

Question	Total Marks	Average	Difficulty Level*
1	4	2.3	0.58
2	4	2.6	0.64
3	5	2.2	0.43

*The difficulty level is the average divided by the total marks possible.

Question 1 was well done by students; however, virtually all of those students who received three of four possible marks (n = 5 127) lost one mark for getting only one answer to part (a). (Note, if $x^2 = 324$, then $x = \pm 18$.) In question 3, several students lost one mark for failing to record their answers correctly to one decimal place as required. At the time of the examination, no policy had been established regarding rounding off throughout a question. As a result, a range of values were considered as correct answers (116.3 cm^2 → 117.3 cm^2 and 23.8% → 24.5%). Beginning in January 1989, students will be expected to generate answers of 116.5 cm^2 and 24.3% to such a question with no other answers being considered correct. (See the *Grade 12 Examinations Bulletin: Mathematics and Sciences: 1988-89 School Year* regarding the rounding of answers.)

SECTION 10
BIOLOGY 30 DIPLOMA EXAMINATION RESULTS

BIOLOGY 30: AVERAGES AND DISTRIBUTION OF MARKS

The Biology 30 Diploma Examination consists of Part A, containing multiple-choice questions worth 80% of the total examination mark, and Part B, containing written response questions worth 20% of the total examination mark.

Information in all tables contained in this section is based on the results achieved by 10 419 students.

Table 42 presents percentage distributions by letter grade of school-awarded marks, diploma examination marks, and final blended marks in Biology 30. Averages and standard deviations for these three measures are also presented.

Table 42
Biology 30
Provincial Percentage Distribution of A, B, C, and F Grades, Averages, and Standard Deviations of Scores

Score (%)	School-Awarded Mark	Diploma Examination Mark	Final Blended Mark
A (80-100)	20.5	23.6	21.8
B (65-79)	35.8	26.0	30.2
C (50-64)	35.6	26.6	35.4
F (0-49)	8.1	23.7	12.7
Average (%)	66.9	63.8	65.7
Standard Deviation	13.1	18.1	15.0

The parameters presented in Table 42 should be compared with statistics in similar tables in the jurisdiction, school, and instructional group reports as an aid in interpreting strengths and weaknesses of local educational programs. The distribution of results from the Biology 30 Diploma Examination and the standard deviation indicate that the examination is measuring student performance over the full range of marks. It should be noted that approximately 68% of the students earned marks between 46% and 82%, that is, one standard deviation above and below the average of 63.8%.

Table 43 presents averages and standard deviations for the written response and multiple-choice sections of the Biology 30 Diploma Examination. Averages given in Table 43 are based on raw scores, which are the number of marks obtained on each section of the examination.

The total marks possible are identified for the written response and multiple-choice sections.

Differences between the total Biology 30 Diploma Examination average reported in Table 42 and examination section averages reported in Table 43 are due to rounding.

Table 43
Biology 30
Multiple-Choice and Written Response Raw Score Totals

Examination Section	Total Marks	Weighting (%)	Average	Standard Deviation
Written Response	20	20	10.4	4.4
Multiple Choice	79	80	52.6	14.4

BIOLOGY 30: DIPLOMA EXAMINATION RESULTS

Table 44 on page 59 presents the blueprint used to develop the Biology 30 Diploma Examination. Question numbers in brackets [ ] indicate questions included in Part B of the examination. Question numbers that are *not* enclosed in brackets indicate the multiple-choice questions included in Part A.

Examination emphases (mark values) for each reporting category and cognitive level are included in the table. Classification by reporting category and cognitive level for each question is indicated.

In addition, it should be noted that those questions identified with science process skills from Part A are 2, 8, 18, 20, 22, 25, 27, 30, 39, 40, 45, 48, 50-52, 70, 73, 76, 77, and 80. Those from Part B are 1, 3, and 5. In total, science process skills received a mark value of 33 marks.

It should also be noted that question 72 from Part A was deleted from the examination because it included an inaccurate term.

Table 44
Biology 30
Diploma Examination Blueprint

Reporting Category	Questions By Cognitive Level			Examination Emphasis (%)
	Knowledge	Comprehension and Application	Higher Mental Activities	
Cellular Processes	*1,3*	*2,4* [1]		9
Homeostatic Mechanisms	*6*	*5,7*	*8*	4
Nutrition and Digestion	*9,10,11,12, 13,14,15*	*16,17,19,20* [2]	*18*	16
Body Fluids	*21,33,34,35*	*22,23,24,25, 26,27,28,29, 30,31,32*		15
Breathing, Gas Exchange, and Transport	*36,37*	*38* [4]	*39*	7
Energy Release			*40* [5]	5
The Kidney	*41,42,43, 44,47*	*45,46,48,50*	*49*	10
Regulation of the Internal Environment	*53,56,57,59, 63,65,66*	*51,52,54,55, 58,60,61,62, 64*	[3]	20
Voluntary Movement and Body Support	*68*	*67,69*	*70*	4
Human Reproduction	*74,75,78*	*71,72*,73,76, 77,79*	*80*	10
Examination Emphasis (%)	32	53	15	100

*Question 72 was deleted from the examination because it used the term "sperm" when the term "semen" should have been used.

Tables 45 and 46 present the total marks possible and the provincial averages in raw scores for the subtests (reporting categories) and cognitive levels of Part A and Part B, as well as the total Biology 30 Diploma Examination.

It is important to stress that the averages on the various reporting categories *cannot* be directly compared to one another. Rather, the results presented in tables 45 and 46 can best be used in conjunction with results presented in jurisdiction, school, and instructional group reports to interpret strengths and weaknesses of local educational programs.

Table 45
Biology 30
Raw Score Averages for Subtests (Reporting Categories)

Subtest	Total Marks Possible			Raw Score Averages		
	Written Response	Multiple Choice	Total	Written Response	Multiple Choice	Total
Cellular Processes	5	4	9	2.2	2.8	5.0
Homeostatic Mechanisms	0	4	4	N/A	2.6	2.6
Nutrition and Digestion	4	12	16	2.0	8.5	10.5
Body Fluids	0	15	15	N/A	9.5	9.5
Breathing, Gas Exchange, and Transport	3	4	7	1.8	2.8	4.6
Energy Release	4	1	5	2.4	0.5	2.9
The Kidney	0	10	10	N/A	6.6	6.6
Regulation of the Internal Environment	4	16	20	1.9	10.5	12.4
Voluntary Movement and Body Support	0	4	4	N/A	2.7	2.7
Human Reproduction	0	9	9	N/A	6.1	6.1
Process Skills	13	20	33	6.6	13.2	19.8

Table 46
Biology 30
Raw Score Averages for Cognitive Levels

Cognitive Level	Total Marks Possible			Raw Score Averages		
	Written Response	Multiple Choice	Total	Written Response	Multiple Choice	Total
Knowledge	0	32	32	N/A	21.6	21.6
Comprehension and Application	12	40	52	6.0	26.5	32.5
Higher Mental Activities	8	7	15	4.4	4.5	8.9

Table 47 on page 62 presents the percentage of students choosing each alternative (A, B, C, and D) for each multiple-choice question on the Biology 30 Diploma Examination. The correct response (key) for each question is also identified. The results presented in Table 47 can best be used in conjunction with results presented in jurisdiction, school, and instructional group reports to interpret strengths and weaknesses of local educational programs.

Multiple-choice questions ranged from those that students found to be quite difficult, such as question 33 with only 33.7% of the students answering correctly, to those that were quite easy for students, such as question 9 with 87.4% of the students answering correctly. An example of a question of average difficulty is question 19 with 64.5% of the students answering correctly.

A comparison of expected and actual levels of difficulty for the multiple-choice questions, which were presented on the major units, suggests that students were particularly well prepared in Unit III (Nutrition and Digestion) and in Unit IV (Body Fluids). On the other hand, questions on Unit VIII (Regulation) proved to be more difficult.

Table 47
Biology 30
Results for Individual Multiple-Choice Questions*

Item	Key	Distribution of Responses (%) A	B	C	D	Item	Key	Distribution of Responses (%) A	B	C	D
1	A	75.1	8.5	13.5	2.8	41	A	73.6	7.3	14.4	4.7
2	A	73.8	5.1	11.2	9.8	42	B	5.0	78.9	8.6	7.5
3	C	3.2	9.5	75.0	12.3	43	A	72.9	11.0	11.8	4.2
4	D	20.7	7.0	13.4	58.9	44	C	17.4	6.6	53.4	22.5
5	B	5.2	72.3	7.7	14.7	45	D	9.0	29.8	5.0	56.2
6	C	12.5	7.3	66.8	13.4	46	D	13.9	20.7	11.7	53.6
7	A	64.0	5.5	26.9	3.5	47	C	7.2	19.2	63.4	10.2
8	D	30.1	9.0	7.7	53.2	48	C	8.5	6.1	67.4	18.0
9	B	2.3	87.4	8.3	1.9	49	A	63.4	16.3	10.9	9.4
10	A	80.3	10.3	2.4	7.0	50	D	8.4	15.3	2.9	73.4
11	C	3.8	5.5	84.7	5.9	51	A	68.6	17.9	6.8	6.6
12	B	3.4	72.4	10.7	13.5	52	B	4.9	57.5	33.6	4.0
13	B	17.4	56.3	11.7	14.6	53	A	57.7	8.0	9.2	25.0
14	A	75.7	4.6	6.6	13.1	54	A	74.4	8.6	9.7	7.2
15	B	14.0	51.9	9.7	24.3	55	C	15.5	8.8	63.4	12.3
16	C	14.3	6.2	71.4	8.0	56	D	10.0	10.1	8.2	71.7
17	D	4.8	7.3	12.2	75.6	57	A	54.0	17.3	20.2	8.5
18	B	18.1	71.3	1.8	8.8	58	C	12.0	10.7	63.8	13.5
19	A	64.5	15.2	7.3	13.1	59	C	9.6	12.6	68.7	9.2
20	C	26.3	5.7	56.7	11.3	60	D	8.0	34.6	7.7	49.7
21	C	8.6	12.9	71.2	7.3	61	D	17.8	6.9	8.4	66.8
22	C	1.7	10.2	77.3	10.9	62	D	5.1	8.1	18.7	68.2
23	A	82.1	3.5	6.8	7.6	63	B	4.1	74.3	15.9	5.7
24	C	1.7	6.7	87.3	4.2	64	C	31.5	8.1	51.9	8.5
25	C	6.7	8.1	55.5	29.7	65	D	7.1	9.1	1.1	82.6
26	A	68.5	8.9	9.0	13.6	66	B	7.3	73.3	12.5	6.9
27	B	7.4	68.7	17.0	6.9	67	C	8.2	3.1	77.7	11.0
28	D	10.3	6.4	14.8	68.4	68	D	13.4	18.6	8.3	59.8
29	D	23.4	10.3	5.5	60.8	69	B	8.1	68.8	7.9	15.1
30	D	7.2	9.5	15.7	67.5	70	A	63.2	13.7	13.6	9.5
31	D	12.1	17.8	17.3	52.8	71	B	11.7	80.1	4.8	3.3
32	B	17.8	54.5	24.7	3.0	72	QUESTION DELETED				
33	A	33.7	48.4	11.7	6.2	73	C	7.7	8.0	79.5	4.8
34	C	28.0	13.9	52.4	5.7	74	D	10.6	8.1	2.8	78.5
35	B	28.8	52.4	7.8	10.9	75	D	15.0	10.3	2.6	72.1
36	A	73.2	15.3	4.2	7.3	76	A	73.5	9.9	5.9	10.6
37	D	10.0	5.3	18.6	66.1	77	D	10.4	10.2	24.0	55.3
38	A	64.2	11.1	12.6	12.0	78	B	17.6	44.6	22.7	15.0
39	B	4.6	72.6	12.2	10.5	79	D	23.5	12.0	18.0	46.4
40	D	7.4	8.8	34.9	48.8	80	C	8.4	9.2	75.3	7.0

*The sum of the percentages for some questions is less than 100% because the No Response category is not included. This category does not exceed 0.1% for any question.

Table 48 presents the distribution of marks for each question on Part B of the Biology 30 Diploma Examination.

Table 48
Biology 30
Distribution of Marks for Written Response Questions

Question	Percentage of Students Obtaining Each Mark						
	NR*	0	1	2	3	4	5
1	2.3	7.8	19.8	28.3	26.0	13.6	2.2
2	7.2	14.0	15.6	26.5	15.0	21.7	
3	8.4	8.0	20.1	28.0	24.7	10.7	
4	1.8	15.4	21.9	27.0	33.9		
5	4.7	9.6	10.4	27.4	12.7	35.2	

*No Response

To take question number 1 as an example, 2.3% of the students did not respond to the question and 7.8% were awarded no marks for their responses. The percentage of students receiving one mark out of five was 19.8%, while 2.2% received full marks (five out of five) for their responses.

Table 49 presents the provincial average in raw score and the difficulty level for each question on Part B of the Biology 30 Diploma Examination. It must be noted that these averages *cannot* be directly compared since the questions were designed to be different in difficulty.

Table 49
Biology 30
Average Marks Awarded for Written Response Questions

Question	Total Marks	Average	Difficulty Level*
1	5	2.2	0.44
2	4	2.0	0.50
3	4	1.9	0.48
4	3	1.8	0.59
5	4	2.4	0.61

*The difficulty level is the average divided by the total marks possible.

The written response questions provided the students with the challenges of making comparisons, applying basic knowledge, interpreting research findings, formulating hypotheses, and identifying variables. Many students demonstrated the ability required to meet these challenges. They presented well-thought-out and well-constructed responses. Due consideration was given to the request to respond to questions using complete sentences. Furthermore, the answers did not tend to include extraneous material, in spite of the open-ended format of the questions.

In keeping with the open-ended format, it is expected that the students' responses follow a logical and sequential development pattern. Students should not assume that the markers will "fill in" missing logical connections as they read the written responses. Also, students must exercise care in choosing illustrative and supporting arguments. Marks may be lost for contradictory information.

More specifically, responses to question 1 indicate that many students found it difficult to think through a complex laboratory-based question that demanded comparative analyses. The formulation of a complete answer required the bringing together of a number of ideas concerning transport, which also proved difficult for many.

The high proportion of no response and zero marks for question 2 suggests that students found it difficult to select from a number of units the appropriate functional descriptions of the liver. Many students in their responses confused the role of the liver with that of the kidney. Still others did not limit their selection to nutritional functions.

Many responses to question 3 indicated that students had difficulty applying basic knowledge about the nervous system to specific problems.

SECTION 11
CHEMISTRY 30 DIPLOMA EXAMINATION RESULTS

CHEMISTRY 30: AVERAGES AND DISTRIBUTION OF MARKS

The Chemistry 30 Diploma Examination consists of Part A, containing multiple-choice questions worth 80% of the total examination mark, and Part B, containing written response questions worth 20% of the total examination mark.

Information in all tables contained in this section is based on results achieved by 8 809 students.

Table 50 presents percentage distributions by letter grade of school-awarded marks, diploma examination marks, and final blended marks in Chemistry 30. Averages and standard deviations for these three measures are also presented.

Table 50
Chemistry 30
Provincial Percentage Distribution of A, B, C, and F Grades, Averages, and Standard Deviations of Scores

Score (%)	School-Awarded Mark	Diploma Examination Mark	Final Blended Mark
A (80-100)	22.7	21.9	21.1
B (65-79)	35.3	24.2	30.5
C (50-64)	33.2	28.4	35.4
F (0-49)	8.7	25.5	13.0
Average (%)	67.5	62.9	65.5
Standard Deviation	13.8	18.2	15.2

The parameters presented in Table 50 should be compared with statistics in similar tables in the jurisdiction, school, and instructional group reports as an aid in interpreting strengths and weaknesses of local educational programs. The distribution of marks from the Chemistry 30 Diploma Examination and the standard deviation indicate that the examination is measuring across the full range of marks. It should be noted that approximately 68% of the students earned marks between 45% and 81%, that is, one standard deviation above and below the average of 62.9%.

Table 51 presents averages and standard deviations for the written response and multiple-choice sections of the Chemistry 30 Diploma Examination. Averages given in Table 51 are based on raw scores, which are the number of marks obtained on each section of the examination.

The total marks possible are identified for the written response and multiple-choice sections.

Differences between the total Chemistry 30 Diploma Examination average reported in Table 50 and examination section averages reported in Table 51 are due to rounding.

Table 51
Chemistry 30
Multiple-Choice and Written Response Raw Score Totals

Examination Section	Total Marks	Weighting (%)	Average	Standard Deviation
Written Response	14	20	7.1	4.2
Multiple Choice	56	80	36.9	9.5

CHEMISTRY 30: DIPLOMA EXAMINATION RESULTS

Table 52 presents the blueprint used to develop the Chemistry 30 Diploma Examination. Question numbers in brackets [ ] indicate questions included in Part B of the Chemistry 30 examination. Question numbers that are *not* enclosed in brackets indicate the multiple-choice questions included in Part A.

Examination emphases (mark values) for each reporting category and cognitive level are included in the table. Classification by reporting category and cognitive level for each question is indicated.

In addition, it should be noted that those questions identified with science process skills from Part A are 9, 13, 15, 17, 18, 19, 20, 26, 27, 28, 30, 31, 32, 33, 34, 35, 36, 37, 40, 44, 45, 46, 48, 49, 50, 53, and 54. Those from Part B are 1, 2, and 3. In total, science process skills received a mark value of 41 marks.

Table 52
Chemistry 30
Diploma Examination Blueprint

Reporting Category	Questions By Cognitive Level			Examination Emphasis (%)
	Knowledge	Comprehension and Application	Higher Mental Activities	
Chemical Energetics	*1,2,3,4,10, 11*	*5,6,7,9,12, 13,15,16,17* [1]	*8,14,18*	33
Acids and Bases	*19,21,22,25, 29,30* [2]	*20,23,24,26, 28,31,32,33, 35,36,37*	*27,34*	33
Oxidation-Reduction	*38,39,44,46, 52,54*	*41,42,43,45, 47,48,50,51, 55,56* [3]	*40,49,53*	34
Examination Emphasis (%)	31	50	19	100

NOTE: Numbers in brackets [ ] indicate the written response questions.

Tables 53 and 54 present the total marks possible and the provincial averages in raw scores for the subtests (reporting categories) and cognitive levels of Part A and Part B, as well as the total Chemistry 30 Diploma Examination.

The results presented in Tables 53 and 54 can best be used in conjunction with results presented in jurisdiction, school, and instructional group reports to interpret strengths and weaknesses of local educational programs.

Table 53
Chemistry 30
Raw Score Averages for Subtests (Reporting Categories)

Subtest	Total Marks Possible			Raw Score Averages		
	Written Response	Multiple Choice	Total	Written Response	Multiple Choice	Total
Chemical Energetics	5	18	23	2.1	11.9	14.0
Acids and Bases	4	19	23	2.4	12.9	15.3
Oxidation-Reduction	5	19	24	2.6	12.1	14.6
Process Skills	14	27	41	7.1	17.0	24.1

Table 54
Chemistry 30
Raw Score Averages for Cognitive Levels

Cognitive Level	Total Marks Possible			Raw Score Averages		
	Written Response	Multiple Choice	Total	Written Response	Multiple Choice	Total
Knowledge	4	18	22	2.4	12.7	15.1
Comprehension and Application	5	30	35	2.6	18.9	21.4
Higher Mental Activities	5	8	13	2.1	5.3	7.4

Table 55 presents the percentage of students choosing each alternative (A, B, C, and D) for each multiple-choice question on the Chemistry 30 Diploma Examination. The correct response (key) for each question is also identified. The results presented in Table 55 can best be used in conjunction with results presented in jurisdiction, school, and instructional group reports to interpret strengths and weaknesses of local educational programs.

Multiple-choice questions ranged from those that students found to be quite difficult, such as question 26 with only 39.1% of the students answering correctly, to those that were quite easy for students, such as question 19 with 91.1% of the students answering correctly. An example of a question of average difficulty is question 48 with 63.6% of the students answering correctly.

Table 55
Chemistry 30
Results for Individual Multiple-Choice Questions*

Item	Key	Distribution of Responses (%)				Item	Key	Distribution of Responses (%)			
		A	B	C	D			A	B	C	D
1	D	16.1	5.3	0.9	77.7	29	A	61.2	33.7	2.7	2.4
2	B	11.2	70.4	10.7	7.7	30	D	4.8	7.8	6.0	81.4
3	D	12.0	18.5	12.1	57.3	31	B	6.5	58.7	19.0	15.7
4	D	3.9	20.9	6.3	68.8	32	B	8.5	70.7	10.2	10.4
5	A	50.1	7.9	17.4	24.6	33	B	9.2	40.7	28.9	21.1
6	B	4.4	76.9	16.6	1.9	34	D	4.6	4.7	11.1	79.5
7	D	9.5	14.5	3.3	72.7	35	B	12.9	67.6	11.2	8.0
8	C	5.8	9.7	60.2	24.3	36	A	43.9	28.4	13.5	14.2
9	D	14.1	28.5	6.2	51.1	37	D	13.6	10.1	25.9	50.0
10	A	79.6	11.3	2.1	7.0	38	C	4.2	13.0	80.3	2.5
11	B	14.4	70.6	1.7	13.3	39	D	29.2	14.6	9.0	46.8
12	B	16.0	49.8	18.1	16.0	40	A	71.9	15.3	11.1	1.6
13	A	70.6	13.9	5.1	10.4	41	A	57.8	15.8	23.0	3.3
14	B	11.7	79.0	5.6	3.5	42	A	59.2	11.7	7.2	21.7
15	A	79.8	3.2	10.8	6.0	43	B	7.7	80.0	9.4	2.7
16	C	11.1	13.5	60.9	14.3	44	D	8.5	18.7	15.4	57.4
17	B	7.5	46.0	15.2	31.0	45	C	17.4	19.3	46.1	17.1
18	C	12.7	11.2	67.4	8.6	46	B	14.0	53.2	15.2	17.5
19	C	2.9	4.6	91.1	1.3	47	C	6.1	6.6	75.6	11.5
20	D	11.1	4.7	2.0	82.2	48	B	6.0	63.6	22.2	8.1
21	C	12.4	5.0	72.1	10.5	49	C	13.8	25.8	50.7	9.4
22	C	12.0	5.6	74.8	7.5	50	C	10.6	8.6	75.4	5.2
23	B	6.3	88.2	3.8	1.7	51	B	1.4	80.3	4.8	13.5
24	C	2.7	2.3	61.4	33.5	52	A	81.5	3.3	3.6	11.6
25	D	3.1	3.9	8.0	84.9	53	C	15.6	11.0	48.2	25.1
26	D	27.1	12.3	21.3	39.1	54	B	27.7	63.9	6.4	1.9
27	D	2.5	7.6	16.6	73.2	55	A	56.2	6.9	13.3	23.5
28	D	16.5	6.7	4.9	71.8	56	A	54.6	7.6	32.4	5.3

*The sum of the percentages for some questions is less than 100% because the No Response category is not included. This category does not exceed 0.4% for any question.

Table 56 presents the distribution of marks for each question on Part B of the Chemistry 30 Diploma Examination.

Table 56
Chemistry 30
Distribution of Marks for Written Response Questions

Question	Percentage of Students Obtaining Each Mark						
	NR*	0	1	2	3	4	5
1	8.4	24.5	17.8	10.0	6.3	11.3	21.6
2	4.7	10.9	16.1	16.2	21.5	30.5	
3	4.6	19.3	13.7	12.0	12.1	8.5	29.8

*No Response

To take question 1 as an example, 8.4% of the students did not respond to the question and 24.5% were awarded no marks for their responses. The percentage of students receiving one mark out of five was 17.8% and 21.6% received full marks (five out of five) for their responses.

Table 57 presents the provincial average in raw score and the difficulty level for each question on Part B of the Chemistry 30 Diploma Examination. It must be noted that these averages *cannot* be directly compared since the questions were designed to be different in difficulty.

Table 57
Chemistry 30
Average Marks Awarded for Written Response Questions

Question	Total Marks	Average	Difficulty Level*
1	5	2.1	0.42
2	4	2.4	0.59
3	5	2.6	0.51

*The difficulty level is the average divided by the total marks possible.

The level of student performance on the Chemistry 30 examination indicated good overall achievement. Learning the basic facts and definitions of chemistry is being accomplished successfully.

In question 1 of the written response section, the use of data and the relevant calculations were well done; however, a significant number of students were unable to distinguish between the heat of formation and the heat of combustion. Many excellent, innovative methods were presented as solutions to this problem. The most poorly answered component of this question was the failure of students to make a written statement consistent with their calculations.

Answers to question 2 also varied greatly, from well planned paragraphs using a qualitative basis for separation to quantitative pH calculations. The weakness of the typical response to this question seemed to be the lack of a plan of attack for separation and identification, as well as an inability to verbalize an understanding of the pH concept.

In question 3, a disappointing number of students were unable to do the simple stoichiometric calculation required in part b.

Almost all students attempted all three questions and earned partial marks. The partial marks lost by many students were due to errors such as: incorrect calculation of molar mass, not balancing equations, not using the mole ratio from the equations, inconsistent use of units throughout calculations, and an incorrect number of significant digits in the anwswer.

SECTION 12:
PHYSICS 30 DIPLOMA EXAMINATION RESULTS

PHYSICS 30: AVERAGES AND DISTRIBUTION OF MARKS

The Physics 30 Diploma Examination consists of Part A, containing multiple-choice questions worth 80% of the total examination mark, and Part B, containing written response questions worth 20% of the total examination mark.

Information in all tables contained in this section is based on the results achieved by 5 011 students.

Table 58 presents percentage distributions by letter grade of school-awarded marks, diploma examination marks, and final blended marks in Physics 30. Averages and standard deviations for these three measures are also presented.

Table 58
Physics 30
Provincial Percentage Distribution of A, B, C, and F Grades, Averages, and Standard Deviations of Scores

Score (%)	School-Awarded Mark	Diploma Examination Mark	Final Blended Mark
A (80-100)	28.3	29.7	27.7
B (65-79)	37.3	28.9	35.4
C (50-64)	28.3	25.0	28.6
F (0-49)	6.1	16.4	8.3
Average (%)	70.0	67.7	69.3
Standard Deviation	13.5	17.5	14.7

The parameters presented in Table 58 should be compared with the statistics in similar tables in the jurisdiction, school, and instructional group reports as an aid in interpreting strengths and weaknesses of local educational programs. The distribution of marks from the Physics 30 Diploma Examination and the standard deviation indicate that the examination is measuring across the full range of marks. It should be noted that approximately 68% of the students earned marks between 50% and 85%, that is, one standard deviation above and below the mean of 67.7%.

Table 59 presents averages and standard deviations for the written response and multiple-choice sections of the Physics 30 Diploma Examination. Averages given in Table 59 are based on raw scores, which are the number of marks obtained on each section of the examination.

The total marks possible are identified for the written response and multiple-choice sections.

Differences between the total Physics 30 Diploma Examination average reported in Table 58 and examination section averages reported in Table 59 are due to rounding.

Table 59
Physics 30
Multiple-Choice and Written Response Raw Score Totals

Examination Section	Total Marks	Weighting (%)	Average	Standard Deviation
Written Response	14	20	8.3	3.6
Multiple Choice	56	80	39.0	9.4

PHYSICS 30: DIPLOMA EXAMINATION RESULTS

Table 60 presents the blueprint used to develop the Physics 30 Diploma Examination. Question numbers in brackets [ ] indicate questions included in Part B of the Physics 30 examination. Question numbers that are *not* enclosed in brackets indicate the multiple-choice questions included in Part A.

Examination emphases (mark values) for each reporting category and cognitive level are included in the table. Classification by reporting category and cognitive level for each question is indicated.

In addition, it should be noted that those questions identified with science process skills from Part A are 4, 5, 6, 10, 17, 21, 32, 33, 36, 40, 41, 42, 49, and 54. Those from Part B are 1, 2, and 3. In total, science process skills received a mark value of 28 marks.

Table 60
Physics 30
Diploma Examination Blueprint

Reporting Category	Questions By Cognitive Level			Examination Emphasis (%)
	Knowledge	Comprehension and Application	Higher Mental Activities	
Light	*7, 8, 14, 15,16*	*1,2,3,4,9,10, 11,12,13*	*5,6*	23
Electric and Magnetic Fields	*18,20,22, 27,28,31*	*19,21,23,24, 25,26,29,30* [1]	*17*	27
EM Radiation	*35,37,38*	*32,33,34* [2]	*36*	16
Structure of Matter	*39,43,45,46*	*40,41,44*	*42* [3]	20
Modern Physical Theories	*50,51,52, 53,56*	*47,48,49,55*	*54*	14
Examination Emphasis (%)	33	50	17	100

NOTE: Numbers in brackets [ ] indicate the written response questions.

Tables 61 and 62 present the total marks possible and the provincial averages in raw scores for the subtests (reporting categories) and cognitive levels of Part A and Part B, as well as the total Physics 30 Diploma Examination.

The results presented in Tables 61 and 62 can best be used in conjunction with results presented in jurisdiction, school, and instructional group reports to interpret strengths and weaknesses of local educational programs.

Table 61
Physics 30
Raw Score Averages for Subtests (Reporting Categories)

Subtest	Total Marks Possible			Raw Score Averages		
	Written Response	Multiple Choice	Total	Written Response	Multiple Choice	Total
Light	0	16	16	N/A	12.3	12.3
Electric and Magnetic Fields	4	15	19	2.5	10.8	13.3
EM Radiation	4	7	11	2.9	5.2	8.0
Structure of Matter	6	8	14	2.9	4.3	7.2
Modern Physical Theories	0	10	10	N/A	6.5	6.5
Process Skills	14	14	28	8.3	9.8	18.1

Table 62
Physics 30
Raw Score Averages for Cognitive Levels

Cognitive Level	Total Marks Possible			Raw Score Averages		
	Written Response	Multiple Choice	Total	Written Response	Multiple Choice	Total
Knowledge	0	23	23	N/A	15.2	15.2
Comprehension and Application	8	27	35	5.4	20.0	25.5
Higher Mental Activities	6	6	12	2.9	3.8	6.8

Table 63 presents the percentage of students choosing each alternative (A, B, C, and D) for each multiple-choice question on the Physics 30 Diploma Examination. The correct response (key) for each question is also identified.

Multiple-choice questions ranged from those that students found to be quite difficult, such as question 44 with only 31.7% of the students answering correctly, to those that were quite easy for students, such as question 2 with 89.7% of the students answering correctly. An example of a question of average difficulty is question 38 with 64.8% of the students answering correctly.

Table 63
Physics 30
Results for Individual Multiple-Choice Questions*

Item	Key	Distribution of Responses (%) A	B	C	D	Item	Key	Distribution of Responses (%) A	B	C	D
1	A	88.6	1.6	1.3	8.4	29	C	6.6	6.3	80.2	6.6
2	C	2.3	4.8	89.7	3.1	30	B	3.6	89.3	2.9	4.0
3	B	2.8	89.3	4.7	3.0	31	B	16.3	72.6	1.3	9.7
4	C	3.0	3.9	85.4	7.6	32	C	17.8	5.2	70.1	6.9
5	A	76.9	14.0	5.2	3.7	33	B	3.5	79.5	9.1	7.9
6	B	1.1	87.5	9.4	2.0	34	C	14.2	10.6	70.2	4.9
7	B	9.3	83.2	2.3	5.2	35	A	75.9	14.5	4.8	4.7
8	C	12.6	13.1	70.9	3.3	36	C	7.0	10.7	66.1	16.2
9	A	67.7	2.1	25.1	5.1	37	A	87.7	5.4	4.4	2.5
10	D	1.0	5.3	17.6	75.9	38	A	64.8	10.0	13.3	11.9
11	D	5.0	7.9	26.1	61.0	39	D	1.5	24.8	25.2	48.4
12	D	2.9	5.8	6.4	84.8	40	B	9.9	68.6	10.7	10.6
13	B	9.7	58.5	26.6	5.1	41	C	11.4	11.3	73.7	3.5
14	D	6.3	7.1	13.7	72.9	42	D	17.4	17.1	17.0	47.9
15	D	1.7	8.4	12.3	77.6	43	B	9.7	69.2	10.0	11.1
16	C	28.7	9.7	60.2	1.3	44	A	31.7	52.6	7.5	7.9
17	B	7.6	66.8	14.2	11.1	45	C	11.5	25.4	47.1	15.9
18	A	56.4	6.1	16.5	21.0	46	A	40.7	22.3	23.0	13.8
19	A	79.9	6.2	5.2	8.5	47	C	2.4	7.5	81.7	8.1
20	C	12.8	14.9	62.3	10.0	48	D	3.7	3.8	11.1	81.3
21	A	66.2	13.1	13.8	6.3	49	A	75.7	16.8	5.2	2.0
22	D	15.0	15.0	15.3	54.6	50	A	68.3	18.5	7.5	5.7
23	C	13.9	5.4	69.4	11.3	51	A	39.8	24.6	26.2	9.1
24	A	79.0	5.2	3.8	11.9	52	D	12.0	9.6	8.5	69.8
25	D	6.1	10.7	5.6	77.5	53	C	4.1	5.8	72.9	17.1
26	C	6.5	12.8	68.1	12.0	54	B	31.1	38.2	25.6	5.0
27	C	6.2	5.0	79.3	9.5	55	B	8.1	54.6	21.6	15.3
28	D	8.6	12.7	2.6	76.1	56	D	8.5	15.3	14.1	61.7

*The sum of the percentages for some questions is less than 100% because the No Response category is not included. This category does not exceed 0.6% for any question.

Table 64 presents the distribution of marks for each question on Part B of the Physics 30 Diploma Examination.

Table 64
Physics 30
Distribution of Marks for Written Response Questions

Question	Percentage of Students Obtaining Each Mark							
	NR*	0	1	2	3	4	5	6
1	3.8	12.9	9.5	17.7	19.1	37.0		
2	8.2	5.7	6.7	11.2	14.8	53.4		
3	1.3	2.5	20.3	17.4	21.4	21.0	10.0	6.0

*No Response

To take question number 1 as an example, 3.8% of the students did not respond to the question and 12.9% were awarded no marks for their responses. The percentage of students receiving one mark out of four was 9.5% and 37.0% received full marks (four out of four) for their responses.

Table 65 presents the provincial average in raw score and the difficulty level for each question on Part B of the Physics 30 Diploma Examination. It must be noted that these averages *cannot* be directly compared since the questions were designed to be different in difficulty.

Table 65
Physics 30
Average Marks Awarded for Written Response Questions

Question	Total Marks	Average	Difficulty Level*
1	4	2.5	0.63
2	4	2.9	0.72
3	6	2.9	0.48

*The difficulty level is the average divided by the total marks possible.

Student performance on the Physics 30 examination was generally satisfactory. The excellent results achieved by students on questions involving numerical computation, as observed in the January 1988 examination, were maintained in the June examination. Over the last three years, there has been a considerable improvement in the treatment of both significant digits and units. Many students are now including a unit analysis as part of their solutions to written response calculations.

Three areas of concern surfaced during the scoring of the Physics 30 Diploma Examination.

The first was the appearance of highly abbreviated solutions to problems. These solutions may well have been worked out in detail on the tear-out sheets, and then a mere skeleton of the solution transferred to the space for final work. The minimum length solution acceptable should include explicit statement of the formula used and the numbers substituted into the formula, as well as the final answer.

The second area of concern was found in the answers to written response question number 3. Many students failed to make the distinction between $\Delta E/\Delta f$ and E/f. For graphs that pass through the origin, both expressions give the same numerical result, but for graphs that do not go through the origin, the two expressions give different answers. For this particular problem, only $\Delta E/\Delta f$ has a definite physical interpretation.

The third area of concern was also found in the responses to written response question number 3. Students attempted to find Planck's constant using only one or two of the five data points, rather than using points taken from the best-fit line. Such a method uses data sampling rather than data averaging. In many cases, the numerical answer will be very close to the average if "good" data points are selected, but, close or not, such sampling methods are not appropriate data treatments for an averaging process.

DIPLOMA EXAMINATIONS PROGRAM
PROVINCIAL REPORT
QUESTIONNAIRE

It is the intention of the Student Evaluation and Records Branch to produce documents that will be useful to teachers and administrators. The purpose of the following questionnaire is to garner your opinions about the *Provincial Report* so that these opinions can be considered when the content and format of the report are reviewed prior to January 1989.

Please take a moment to respond to the following questions. Then detach this sheet and send it to:

Mr. Michael Robinson
Assistant Director, Data Analysis and
Student Records Services
Student Evaluation and Records Branch
Alberta Education
11160 Jasper Avenue
Edmonton, Alberta T5K 0L2

USE OF THE REPORT

1. My present role is primarily that of

   - teacher ☐ 1
   - school administrator ☐ 2
   - central office administrator ☐ 3
   - school board member ☐ 4
   - other (please specify)_____

2. (Please check the box beside the statement that applies to you.)

   I read the report, but I DID NOT use it to interpret the results attained by students. ☐ 5

   I read the report, and I used it to interpret the results attained by the students in

   - my classroom ☐ 6
   - my school ☐ 7
   - my jurisdiction ☐ 8

3. (Please respond to the following statement if you have checked boxes 6, 7, or 8 above.)

   I have made use of the results to alter the educational program offered in

   - my classroom ☐ 9
   - my school ☐ 10
   - my jurisdiction ☐ 11

CONTENT OF THE REPORT

1. (Please judge the usefulness of the information included in the various sections of the report by checking the appropriate boxes below.)

	Very Useful	Adequate for Use	Of Some Use	Of No Use
Section 2: Grade 12 Diploma Examinations Program	☐ 12	☐ 13	☐ 14	☐ 15
Section 3: Guidelines for Interpreting the Results of the Diploma Examinations	☐ 16	☐ 17	☐ 18	☐ 19
Section 4: Summary of Results	☐ 20	☐ 21	☐ 22	☐ 23
Sections 5-12: Specific Diploma Examination Results	☐ 24	☐ 25	☐ 26	☐ 27

2. (If you wish, please comment further on the content of the report in the space below.)

FORMAT OF THE REPORT

1. (Please judge the usefulness of the report's format by checking the appropriate boxes below.)

	Very Useful	Adequate for Use	Of Some Use	Of No Use
Organization into Separate Sections	☐ 28	☐ 29	☐ 30	☐ 31
Double-Column Presentation of Text	☐ 32	☐ 33	☐ 34	☐ 35
Presentation of Tables	☐ 36	☐ 37	☐ 38	☐ 39
Blending of Information through Text and Tables	☐ 40	☐ 41	☐ 42	☐ 43

2. (If you wish, please comment further on the format of the report in the space below.)